AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

ORANGE JUDD COMPANY, PUBLISHERS AND PROPRIETORS. Office, 245 BROADWAY.

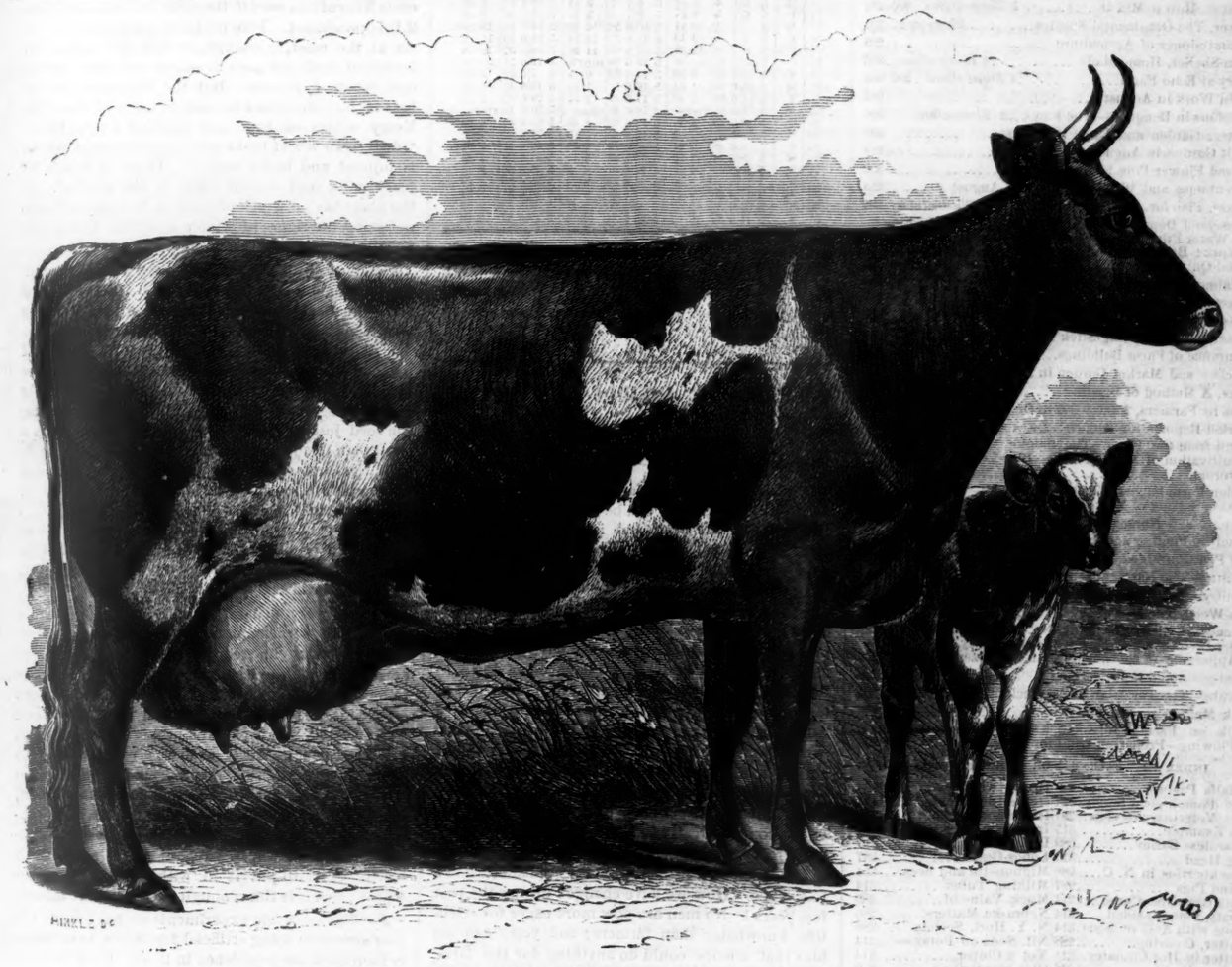
ESTABLISHED IN 1842.

Published also in German at same rates as in English.

TERMS: $1.50 PER ANNUM IN ADVANCE; 4 Copies for $5; 10 for $12; 20 or more, $1 each; 10 Cents additional must be sent with each Subscription for postage.—Single Number, 15 Cents.

Entered according to Act of Congress, in July, 1877, by the ORANGE JUDD COMPANY, at the Office of the Librarian of Congress, at Washington.

VOLUME XXXVI.—No. 8. NEW YORK, AUGUST, 1877. NEW SERIES—No. 367.



AYRSHIRE COW "RUBY." — *Drawn and Engraved for the American Agriculturist.*

To one who loves a fine cow, breed is of secondary consideration. There are fine cows of all pure breeds, and also excellent cows of no breeding at all, without either name, reputation, or position in the world. If profit only were the consideration in keeping cows, there would still be as great diversity of breeds as there now is, for one breed is better adapted to peculiar circumstances than others. The Jersey or Ayrshire would not pay where a Short-horn or a Hereford would, and a Devon has some useful points which no other cow possesses; nor could a Short-horn be kept with profit where the smaller breeds can be. So that it is not fancy, or fashion, which makes a diversity of races both desirable and necessary. The Ayrshire and Jersey cows, however, come into closest competition as the best dairy animals, and although the Ayrshire takes the palm as a copious milker, yet she has not always the rich milk of the Jersey. The difference between the two breeds may be stated thus: the Ayrshire is useful for all sorts of dairying, and excelling in all but one, viz., that of the production of butter of a high color and fine quality, while the Jersey excels precisely in this one respect, and stands at the head of all races as the "gilt-edged" butter cow. She, therefore, holds a narrower place in public estimation than the other. The Ayrshire just now is not the subject of any popular excitement, and only holds her reputation very quietly. It is probable that this breed may be somewhat unjustly held in the background of popularity. The Ayrshire, however, can very well afford to stand upon its own merits, as these are unquestionable. The cow "Ruby," whose portrait is given above, is a fair representation of a good Ayrshire. She is 6 years old, and was imported about a year ago by her present owner, Wm. Crozier, Northport, Long Island, New York, with several other choice animals, personally selected in Scotland. She has taken three first premiums at Scotch fairs, against numerous competitors, and was awarded second premium at the Centennial, soon after her importation; the successful competitor being another cow, of the same herd, "Maggie Anderson," which was awarded first premium. "Ruby" was one of the prize Ayrshire herd at the Centennial; the judges being seven of the leading Ayrshire breeders in America; the distinction of an award in competition with the choice stock there exhibited, is at least very creditable. "Ruby" is now fresh, with a bull calf by her side, and is giving over 29 quarts of milk in 24 hours, the milk being very rich in cream. Her head is fine, the eye full, ears sharp, neck clean, and fore-quarters fine. Her back is very level, the loins are deep, and the udder runs up well behind, comes well forward, and is broad, the teats being so far apart that, for convenience, she is milked from both sides. Her calf is by "Romah," who is out of imported "Rosie," a prize cow at the Highland show at Perth in 1871. On the sires side this calf has the best Ayrshire blood to be procured, tracing his lineage through several first prize dams at the Highland shows. "Ruby" is recorded in the Ayrshire Breeders' Association Herd Register, and also in the N. A. Ayrshire Herd Record.

Contents for August, 1877.

Agricultural Machinery, Economy of.....298
Among the Farmers, No 19.—Insects—Moth Trap—High Manuring for Peas—The City's Filth—The Storrs Farm—Reclaiming a Swamp—Wild Onions and Milk—A Lesson From Bees.....294-295
Axe for Fence Posts.....*Illustrated*..297
Bee Notes for August.....290
Boys and Girls' Columns—Doctor's Correspondence, Insect with Stone House, Crawfish, Sowbugs, House Fly, Killing Snakes—Aunt Sue's Chats—Aunt Sue's Puzzle Box—Doctor's Talks, About the Japanese, How Gyp was Deceived—Puzzle Picture... 9 *Illustrations*.....305-308
Catalogues Received.....289
Cattle, Ayrshire Cow, "Ruby."....*Illustrated*..281
Cattle, Echo Farm Herd of Jerseys....2 *Illustrations*..293
Cellar Walls, Draining.....2 *Illustrations*..297
Cement, How to Mix It.....5 *Illustrations*..296-297
Clover, The Ornamental Species.....*Illustrated*..301
Commissioner of Agriculture.....299
Corn-Sheller, Home-Made.....4 *Illustrations*..296
Dairy at Echo Farm.....4 *Illustrations*..299-300
Farm Work in August.....282
Fashions in Bouquets—The Fan ...2 *Illustrations*....300
Flower Garden and Lawn in August.....284
Fruit Garden in August.....284
Glazed Flower-Pots for House Plants.....302
Greenhouse and Window Plants in August.....284
House, Plan for.....4 *Illustrations*..292
Household Department—Vegetable Washing Machine—Water Filter—Home Topics, Husbands and House-Work; Bread-Making; Repairing Comforters; Old Bed-Quilts; Washing Blankets..2 *Illustrations*..303-305
Humbugs, Sundry.....287-288
Insects—Cutworms—Climbers.....299
Insects—Potato Bug in Germany.....299
Insects—The Walking-Stick Again.....302
Insurance of Farm Buildings.....298
Kitchen and Market Garden in August.....284
Logs, A Method of Blasting.....2 *Illustrations*..298
Loss to Farmers, $20,000,000 in One Year.....289
Market Reports for August.....285
Notes from the Pines—The Smoke Tree—Deutzias—Cultivation of Native Plants—Bird-foot Violet—Cutworms.....2 *Illustrations*..302
Ogden Farm Papers, No. 90.—Irrigation—Windmills—Deep Setting of Milk—Prickly Comfrey.....290-291
Orchard and Nursery in August...5 *Illustrations*..283-284
Peaches, Picking and Packing.....2 *Illustrations*. 303
Pig Pen, Portable.....2 *Illustrations*..296
Poultry—The Narragansett Turkey.....296
Poultry—Treatment of Scabby Legs.....299
Sea-Weed, The Use of.....297
Science Applied to Farming, No. XXXIII—More about Seeds—Testing Their Purity and Vitality—Sprouting Apparatus—Experiments with Fertilizers.2 *Ill*..291-292
Seed-grain and Cold.....298
Shrubs—The Tartarian Honeysuckle.....*Illustrated*..301
Silk Manufacture in America.....298
Talk on Farm Crops, No. 6.—The Corn Crop—Fall Plowing—Preparing Land for Barley.....295-296

INDEX TO "BASKET," OR SHORTER ARTICLES.

Alfalfa Pasture.....289
Am. Pomological Soc'ty.314
Am. Veterinary Review..287
An Example.....315
Beardless Barley.....289
Big Head.....315
Blackberries in N. C....288
Blind Pigs.....287
Blue Grass, No Curse....314
Boats, Smooth-sided.....314
Bone with Acid or Soda.314
Butter, Coloring.....288
Butter in Hot Climates..315
Butter, Packing.....286
Cancer in Bull.....315
Care with Fertilizers....315
Castor Pomace.....287
Cement Concrete.....315
Cement Tiles.....313
Charcoal, Burned Bones..315
Cisterns.....289
Clovers.....314
Clover Seed.....315
Cotton-seed as Fertilizer.315
Crevecœur Fowls.....315
Cucumbers Fried.....289
Death of Chas. O. Judd..286
Death of C. H. Walton...286
Disease of Blood.....315
Ditching Plow.....289
Dog-Power Churns.....313
Drawing Studies.....287
Egg-Plant, to Cook.....289
Egg Preserving.....287
Fall Fallowing.....289
Farm Engines.....314
Feeding Chickens.....287
Food for Milk.....313
Fretting for Farm.....315
Fruit in England.....290
"Gardener" and others.314
German Millet to Cows..315
Goats and Hair.....315
Green Corn Pudding....289
Harvesting Beans.....313
Hay and Grain Caps.....314
Home for Sale.....287
Honor well Bestowed...286
Horse Distemper.....314
Horse not Backing.....313
Irrigation.....289, 314
Liniments.....315
Lobos Guano.....287
Mignonette and Bees....314
Milking Tubes.....314
Muck, Value of.....289
Nebraska Matters.....286
N. Y. Hort. Society.....286
Nit. Soda on Potatoes...314
Not a Clover.....314
Oleo-margarine.....289
Onions and Oranges.....315
Orchard Grass Seed.....315
Parrafin and Seeds.....290
Peach Crop.....290
Plague of Insects.....287
Pleasure and Business...314
Pleurisy in Pigs.....289
Polled Angus Cattle....314
Potato-bugs and Flax....313
Potato Fertilizer.....315
Prizes for Tree Planting.287
Purslane on the Table...290
Quidding Horse.....313
Rural New Yorker.....286
Sacrifice of Seeep.....315
Saddler's Wax.....314
Scientifics.....314
Screws vs. Sticks.....286
Sheep for Profit.....314
Shepherd Dogs.....313
Short-horn Convention...287
Slow Breeders.....289
Smut in Wheat.....313
Spavin Cure.....315
Swine Husbandry.....286
Texas Fair.....314
Thumps in Hogs.....289
Time to Cut Timber....314
Tobacco Culture.....315
Trow's N. Y. Directory..314
Varieties of Wheat.....288
Windmills for Corn.....315
Wis. Hort. Society.....314

Calendar for August.

Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Mo'n rises.	N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Mo'n rises.	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Mo'n rises.
		H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
1	W	4 52	7 20	10 16	4 57	7 16	10 21	5 1	7 11	10 25
2	T	4 54	7 18	10 44	4 58	7 14	10 52	5 2	7 10	10 57
3	F	4 55	7 17	11 22	4 59	7 13	11 30	5 3	7 9	11 37
4	S	4 56	7 16	morn	5 0	7 12	morn	5 4	7 8	morn
5	S	4 57	7 15	0 12	5 1	7 11	0 39	5 5	7 7	0 28
6	M	4 58	7 14	1 16	5 2	7 10	1 24	5 6	7 6	1 32
7	T	4 59	7 12	2 32	5 3	7 9	2 40	5 6	7 5	2 47
8	W	5 0	7 11	sets	5 3	7 7	sets	5 7	7 3	sets.
9	T	5 1	7 10	7 34	5 4	7 6	7 32	5 8	7 2	7 29
10	F	5 2	7 8	7 58	5 5	7 5	7 58	5 9	7 1	7 57
11	S	5 3	7 7	8 22	5 6	7 3	8 23	5 10	7 0	8 24
12	S	5 4	7 5	8 46	5 7	7 2	8 49	5 11	6 59	8 50
13	M	5 5	7 4	9 10	5 8	7 1	9 14	5 12	6 57	9 17
14	T	5 6	7 3	9 37	5 9	7 0	9 43	5 13	6 56	9 49
15	W	5 7	7 1	10 11	5 10	6 58	10 18	5 14	6 55	10 25
16	T	5 8	7 0	10 49	5 11	6 57	10 58	5 15	6 53	11 5
17	F	5 9	6 58	11 38	5 12	6 55	11 46	5 16	6 52	11 55
18	S	5 10	6 57	morn	5 13	6 54	morn	5 17	6 51	morn
19	S	5 11	6 55	0 33	5 14	6 52	0 41	5 17	6 49	0 48
20	M	5 13	6 54	1 34	5 16	6 51	1 41	5 18	6 48	1 49
21	T	5 14	6 52	2 40	5 17	6 49	2 47	5 19	6 47	2 52
22	W	5 15	6 51	rises	5 18	6 48	rises	5 20	6 46	rises
23	T	5 16	6 49	6 41	5 19	6 46	6 43	5 21	6 44	6 40
24	F	5 17	6 47	7 3	5 19	6 45	7 3	5 22	6 42	7 2
25	S	5 18	6 46	7 21	5 20	6 44	7 22	5 23	6 41	7 21
26	S	5 19	6 44	7 39	5 21	6 42	7 41	5 24	6 39	7 42
27	M	5 20	6 43	7 59	5 22	6 41	8 3	5 25	6 38	8 4
28	T	5 21	6 41	8 20	5 23	6 39	8 24	5 25	6 36	8 28
29	W	5 22	6 39	8 47	5 24	6 37	8 53	5 26	6 35	8 53
30	T	5 23	6 38	9 19	5 25	6 36	9 27	5 27	6 33	9 33
31	F	5 24	6 36	10 03	5 26	6 34	10 12	5 28	6 32	10 19

PHASES OF THE MOON.

MOON.	D.	BOSTON. H. M.	N. YORK. H. M.	WASH'N. H. M.	CHA'STON H. M.	CHICAGO. H. M.
3d Quart.	2	5 37 mo.	5 25 mo.	5 13 mo	5 1 mo.	4 31 mo.
New M'n	9	0 33 mo.	0 21 mo.	0 9 mo	11 57 8th.	11 27 8th.
1st Quart	15	5 44 ev.	5 32 ev.	5 20 ev.	5 8 ev.	4 38 ev.
Full M'n	23	6 26 ev.	6 14 ev.	6 2 ev.	5 50 ev.	5 20 ev.

AMERICAN AGRICULTURIST.

NEW YORK, AUGUST, 1877.

It is some years since farmers could afford to be as complacent as they can be now. Generally this season there has been, and is now, little to complain of. Wheat and rye, and oats, where cut, have done well; if not very well, hay has turned out better than it promised in the spring; potatoes are a good crop in spite of the beetle; fodder crops, corn, and roots, are doing well, and outside of the farm, business is looking up. We have got over the flurry of artificial values; we have come down to "hard pan," and those who are out of debt feel as well as ever. Confidence is returning; it is a wonder that it was ever lost; and if any man in the world should be confident, it is the farmer who is out of debt, and who knows how to use his farm well. Unfortunately there are comparatively few such; but the experience of the past few years ought to add greatly to the number of this class. The great study of the farmer now should be, to add to the capacity of his soil by every appliance known to science. How we have changed during the past few years! No men are now more eager for scientific knowledge than farmers; and years ago the idea that science could do anything for the farm, was scouted by the great majority of them. But what has been done is too plainly seen, and it is too clearly understood now, how much remains to be done before the farmer can say that he is satisfied. We are just beginning to know how to learn. This is the first step in all education, and it is pretty certain that, in the next few years, we shall see a great advance in our system of agriculture and in its profitable operation. Now is the time of our necessity, and necessity being the mother of invention, a way to arrive at the needed end will be soon reached. And the end we need to reach, is simply to bring the productive capacity of the farm to an equality with that of other industries which have, for years past, shot ahead of agriculture.

Hints for Work.

Preparations for Sowing Wheat should be made at once. There was formerly more difference of opinion as to the time of sowing wheat than there is now. The majority of farmers favor early sowing, and if the seed is well in the ground late in August, the chances are more favorable than if it is sown later. Where wheat follows oats, the oat stubble should be plowed immediately after the crop is taken from the field. If the weather is dry, the greater will be the necessity for repeated plowing and rolling, to prevent the soil from baking.

A Mellow Soil, well rolled and packed, is what the seed requires to germinate in. If the soil is cloddy, the young roots are exposed to the action of air in the open spaces, and dried and killed. This is the secret of many failures of what were at first promising seedings. Repeated harrowings and rollings are needed to produce the proper condition of the soil. No matter if the surface is somewhat rough, if the soil beneath is mellow and fine. Indeed, we would rather have the top a little rough.

Drilling is by far the best method of seeding. It costs 50 cents an acre if the drill is hired, and less if it is purchased. Five pecks of seed per acre, or six at the most, is enough, so that at least half a bushel of seed per acre is saved, and here is the cost returned at once. But the difference in the harvest is, many times its cost, in favor of the drill. Every winter we hear and read, on every hand, "drill sown wheat looks well, but broadcast wheat is injured and looks badly." There is much in placing the seed exactly right in the ground. If the plant has no depth of root, it is weak, and can not stand the rigors of winter or spring, and it will not tiller out as will that more deeply sown.

Seed and Seeding.—It hardly need be said that, if the seed is not good, no good crop can be hoped for. The necessity for selecting seed with care has been a maxim of agriculture for thousands of years. The oldest books tell of it. And yet the success of persons, who make a business of doing this, is now made a "nine days wonder." Unfortunately it is forgotten again in nine days, and we go on sowing the seed just as it comes from the sheaf. It is a good plan to sow, at least a small strip in the field, with the best seed to be procured, upon ground prepared in the best way, and cut this by itself at harvest, and thrash it at once for seed. But if this pays, why not grow the whole crop in the same way? A good farmer should have no grain that he cannot use for seed; none that is poor, light, shrunken, or mixed with cockle and garlic.

Rye.—A very general opinion is held in some places, that wheat can no longer be grown; that the climate has changed, or something else has occurred that makes it hopeless, and that rye needs to be sown in place of it. Nothing could be more erroneous. If the ground is well fitted, the seed well selected, and sown in a proper manner, wheat can be grown as easily as ever. We have seen so many examples of this, in different places, that we advise every farmer who has this mistaken opinion, to try at least an acre or two in the manner proposed, in place of rye, which is a much less valuable grain than wheat. When rye is sown, it is worth while to put it in with as much care as wheat; but it is time enough to sow it next month.

Fertilizers.—Some experiments we have made the past season in using artificial fertilizers, have largely increased our confidence in them. Used in place of stable manure upon potatoes, corn, and grass, the crops are quite equal to those grown with the manure. The complete manure, prepared by Chas. V. Mapes, from Prof. Ville's formula, has been remarkably effective with the writer the past season upon all these crops. Where manure is scarce, a dressing of this upon fall sown crops would be beneficial. The use of artificial fertilizers must be increased if we would enlarge our crops.

The Potato Beetle.—It is a short-sighted business to leave the last broods to breed and increase, because the potatoes are past harm. *This is seeding for a crop next year*, which will perpetuate the vermin and make work for another season. If the late arrivals are destroyed, there will be very few another year. If a thorough work were made of this pest for one season by every one who grows potatoes, a very quick end could be made of it.

Potatoes.—Early potatoes should be harvested as soon as ripe. Else, if wet weather occurs, the tubers may sprout and be injured. Rue's Potato Digger is an effective implement, designed expressly for this work, and where the crop is a large

one, it can hardly be dispensed with, if the crop is to be gathered and put away as quickly as it should be. There is no other crop that follows potatoes so well as fall wheat, and no ground so easily prepared for it as potato ground. Potatoes may be pitted and lightly covered with the vines, and some boards over these, and remain until frost.

Turnips.—The White Norfolk Globe, or the Cow-Horn Turnip, can be sown upon an oat stubble, if wheat is not to follow the oats. If the ground is fairly clean, the seed may be sown broadcast at the rate of three pounds per acre. But it is better to sow with one of the small hand-drills, in rows 27 to 30 inches apart, when a pound and a half to two pounds of seed will be sufficient. 100 to 200 pounds of guano, or a fertilizer prepared expressly for turnips, should be sown immediately after the seed.

Meadows and Pastures will be greatly benefited by a light dressing of artificial manure. 100 pounds of nitrate of soda, with a bushel of finely ground gypsum, per acre, will work a great change for the better. Pastures should not be used until after a good shower has washed the nitrate into the soil.

Thrashing.—When grain is thrashed, it is safe from the majority of its many enemies. It is also ready to sell at a moment's notice, when the price suits, or money is wanted. Perhaps no further reasons than these need be given, why it is well to thrash as early as possible. One of the most convenient things about a farm is a thrashing machine and horse-power, or for larger farms one of the many good and cheap steam engines, which will be found described in the advertising columns. It is a great convenience to be able to thrash just when one wants to, and without the fuss and bother of a hired machine.

Composts.—All the different waste matters about the farm, and such purchased material as can be cheaply procured, may now be usefully gathered into a heap for a compost for the wheat crop. One of the most valuable materials for a compost, is castor pomace, which can be procured so cheaply as to make it a very desirable fertilizer to be used in this way. It costs only $10 a ton in St. Louis, and as it contains 7½ per cent, or 150 lbs. to the ton, of ammonia, it is the cheapest source of this indispensable material that can be procured for composts.

Weeds.—Gather and put in the compost heap all the weeds that have not yet seeded. Burn all that have ripe seeds. This work should not be neglected. Upon many farms the road-sides, barn-yard fences, and the sites of old grain stacks, are most prolific nurseries for weeds. These should be cleared up at once.

The Swamps are now dry, and work on them should not be neglected. Getting out muck for use in the winter, and digging ditches, can be better done in August than at any other time.

Fall-Fallowing.—As a means of preparing land for spring crops, there is none better than what is known as fall-fallowing. Our drier season makes this as effective in cleaning the soil, as the English farmer's summer-fallow. Two plowings may be given, if necessary, before the winter, and a final deep plowing for the last, will leave the soil in fine condition in spring, for root crops or corn. If any fall-fallowing is to be done, it should be begun at once.

Milch Cows will need some fresh fodder as soon as the pastures have become dry and hard. Those who have provided some fodder crop, will keep up the supply of milk, those who have not, will now regret their neglect. There are some farmers who make more than others, some make but little, but the best might often do a little better, and at this season this truth comes home.

Sheep.—Lambs should now all be weaned, and the ewes fed well for breeding. Next month the coupling season will begin. Nothing is gained, but much is lost, by using a poor ram. A pure bred ram, of whatever kind is chosen, should be procured at once. None less than a year old should be used for breeding. The ewe lambs should be separated from the old ewes, and kept in a good pasture, or otherwise well fed by themselves.

Swine.—Some breeders make a business of having their sows litter in August, so as to get the pigs ready by the holidays for small pork. By proper management, two litters of pigs may be turned off from one sow in the year, the pigs being sold at three to four months old as "market pigs." There is evident profit in this, and because every one does not know how, or care to take the trouble to do this, there is the more profit for those who do. The best work pays best in everything.

Poultry.—As we go about and see the poor mixed lots of fowls in farm-yards, the improvidence of it is too palpable to be overlooked. Where a good breed is kept, and well cared for, the profit exceeds that of anything else on the farm. Now is a good time to clear out poor fowls and procure a few good pullets; after a run on the stubbles, the old fowls will be in good condition for market. Moulting fowls will be greatly helped by a little of the "Imperial Egg Food," which we have referred to already. We have found it very beneficial.

Sundry Matters.—See that the stock, of all kinds, do not want for water. A good force pump and some hose, by which water may be led to a trough wherever it is required, will be found useful. Clean out root cellars, and make them ready for the root harvest. Granaries should be thoroughly well cleaned, and every crevice filled with hot lime-wash, put on very thick. The windows should be protected by wire gauze, to keep out the grain moths and weevils. Save all the straw and chaff for feeding, and use leaves, muck, sand, or earth for bedding; a store of these should be gathered by and by. In spare hours make repairs, clean machines, and remember that the summer is fast slipping away, and the fall, with its rains and storms, will be upon us, and many things that may be done now, can not be done then.

Notes on Orchard and Garden Work.

Last month it was suggested that July and August were the months in which the cultivator could avail himself of the recreation and instruction afforded by travel. Perhaps fruit-growers and gardeners generally, lead less isolated and secluded lives than do farmers, but at best they go about all too little. Next month the fairs will demand attention, and the harvest of the larger fruits will be coming on; hence the present is the most favorable time for a brief vacation. If one has an idea of changing his residence, and moving to a locality that he regards more favorable—and our correspondence shows that there are many such—now is the best time to visit the proposed locality. We do not say that places will show at their best; on the contrary, after the heats of July and August, especially if the usual drouths occur, every place will look at its very worst, and that is the condition in which an intending purchaser should see the place he proposes to make his future home. If he knows the worst, no disappointment can follow. Many a place that in the freshness of spring or the ripeness of autumn seems charming, presents a sorry aspect at the present season. As usual, last month's Notes are to be referred to for many hints that we do not repeat, but which are as timely now as then.

Orchard and Nursery.

If every fruit-grower could go to the market where his fruit is sold, and see his own packages in contrast with those of many other growers, and notice the preferences of the buyers, he would learn a useful lesson. If his own parcels went off well, he would see why this was the case, and study to improve upon their present style; if, on the other hand, his fruit was passed by, and that of another preferred, he would learn that what seem to be trifles have a money value. A new half-barrel, lined with clean, white paper, may contain no better Bartlett or other pears, than his own second-hand package, but his are not touched until all the clean and bright parcels have been taken up, and at a price that much more than covers the difference in cost between the two packages....We have mentioned the matter of

Assorting fruit, until it is irksome to repeat it; but our daily walks among the fruit dealers, show that a very few of the fruit growers understand, or at least practice, this—one of the easiest methods of increasing their profit. If we insist upon the importance of that which experienced fruit-growers do, as a matter of course, it must be remembered that these Notes are for novices, and those slow to adopt new methods, and must have precept upon precept. It is very easy for one sending fruit to market, to test the

Money Value of Assorting.—Let him try it with pears, early apples, or peaches, sending some packages of fruit as it runs, and the same number of which the fruit has been separated into two qualities, rejecting from the second grade all that is imperfect and absolutely poor. He will be astonished to find that there is but little difference in the returns from his second quality and the unassorted parcels, while the returns from the first quality will show that there is no more remunerative labor than that he has given to them....Recollect that

A Few Poor Specimens will spoil the looks of a whole basket of fair fruit, while many good specimens will not bring up the grade of an indifferent lot. Just as the strength of a chain is that of its weakest link, so does the buyer estimate the fruit by the poorest that are visible. Assorting pays with all kinds, but is especially necessary in

Marketing Peaches, as not only the appearance has to be considered, but the degree of maturity. On page 308 will be found an article devoted to the crop, which the inexperienced may find useful.

Pears.—There is scarcely an exception to the rule that these are much better when ripened off of the tree, and some, unless gathered early enough, will be absolutely worthless; those beautiful pears, Clapp's Favorite and Flemish Beauty—a beauty indeed, where it will grow with a clear skin—are marked examples of this. Hence it becomes a matter of profit that the fruit-grower should know the peculiarities of the varieties he raises.—"There's money in it."

Large Pears are apt to be blown off in gales, and we have known the ground around the trees to be covered with marsh hay, to prevent the bruising of the fruit, the owner finding it profitable; where there is grass, that will prevent bruising; if there is no grass, keeping the soil light and removing all stones, will be of use.

Fallen Fruit should always be utilized; swine may be pastured in the orchard, or the fruit picked up daily and carried to their pens; in case neither is done, some other methods should be adopted to destroy the larva of the codling moth that is commonly within it. Vinegar makers grind and press the windfalls daily, to add to the vinegar crop.

Insects.—The Notes of June and July treat of the principal insects. The traps, cloth being the best, as described last month, for catching the Codling Moth, should be looked to every 10 days. The Late, or Fall Web-worm, a different insect from the Tent-caterpillar, though resembling it in building a web, is common on forest as well as fruit trees, and should be killed wherever found. Cut away the twig upon which the web is found, and crush.

Budding is a method of propagating fruit trees less frequently practised by the farmer and cultivator, than grafting, but the nurserymen employ it extensively, and for some fruits exclusively. In the instructions given in the April Notes, in grafting, it was stated that in that process "we take a piece of a stem, and instead of putting it in the soil, we plant it in the branch of another tree," and that the object in doing this was, "to plant the twigs of a fruit that we know and want, upon the roots of a kind that we know nothing about, or of an undesirable kind."

Budding is a Kind of Grafting, indeed, the French call it "grafting with an eye." In grafting, a twig with several buds is used; in budding, we use but one bud, and the end to be accomplished is the same as in grafting. The old term was inoculate, (from the Latin *in*, and *oculus*, an eye), and is occasionally used at present, but the same term is also used for imparting disease, by inserting the virus into the flesh, as in vaccinating, and many persons think that inoculating a tree imparts to it the power to bear better fruit, while really the bud that is in-

serted is the starting point of a new tree, all of the stock, or the tree in which the bud is placed, being cut away above the bud.

Grafting and Budding Differ in other points besides that mentioned. In grafting (at least so far as fruit trees are concerned) we use buds of the last season's growth, and expect them to grow the same season we insert them. In budding, we use buds that have been formed the same season, and expect them to lie dormant all winter, and to start into growth the following spring; hence budding is done in summer and early fall.

What are Needed in Budding.—Stocks on which to work; buds, a suitable knife for the work, and material for tying the buds after insertion.

The Stocks are usually small, from one fourth of an inch to an inch thick; peach and plum stocks from seed planted in spring, are usually large enough by mid-summer; slower growing ones will be older. The stock must be in a thrifty, growing state; the proper condition is shown by the bark parting freely from the wood, or as budders say, "the bark will run."

Buds are formed in the axils of the leaves of twigs that have grown the same season. They must be well formed, and of course great care should be taken to get them true to the kind. The suitable twigs are cut, taking care to keep from wilting by thorough wetting. To prevent evaporation, each leaf is cut away, leaving about half an inch attached to the leaf-stalk; as the lowermost buds on a twig are usually very small, and the uppermost not mature enough, both the top and bottom of the twig are cut off. A twig thus prepared is called a "stick of buds," and is ready for use. It must be kept in the shade and cool until used, and in budding the sticks, except the one in hand, should be kept covered and damp.

The Knife.—Budding knives of various patterns are sold, with round and square points, and with and without a thin ivory spatula at the end opposite the blade, as in figure 1. Each regular budder has his own notions about the best shape, but the rapid budders generally use a round blunt-pointed knife, and some prefer to have the blade

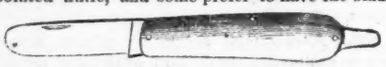


Fig. 1.—BUDDING KNIFE.

fixed, and in a round wooden handle. Whatever the style of knife, it should be very sharp.

The Tying Material in most general use is bast, either imported in the form of Russia matting, or that made from our native Basswood; other imported fibers are sold, such as Roffia, Japan-Flax, etc. Some budders at the West prefer selected inner corn-husks, or "shucks," to any other material, while some use soft cotton twine exclusively.

The Operation is here illustrated by some engravings from Fulton's "Peach Culturist." The leaves being stripped from the lower part of the stock, the budder makes an upright cut through the bark, and another crosswise at the top of that, as in figure 2. He then cuts a stick of buds, and selecting a leaf bud (*fruit* buds are larger and rounder, and are not used), he enters the knife about half an inch above the bud, and cuts downward so that the knife will come out about as far below the bud; this will remove a shield of bark, upon which is the bud and the leaf-stalk below it, which serves as a handle to the shield (fig. 3). A small portion of the wood will be taken off with the bark. Some advise the removal of this bit of wood, but in practice it is usually left, taking care to have it as thin

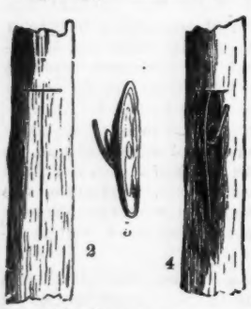


Fig. 2.—THE CUT.
Fig. 3.—THE SHIELD AND BUD.
Fig. 4.—BUD INSERTED.

as possible. The corners of the cut being lifted by the blade of the knife, or thin ivory on the handle, the bud is inserted as in figure 4, and the top of the shield cut square with the cross cut on the stock. The bud is now to be tied in, with a few turns of bast or other material, leaving the bud exposed. Figure 5 shows one method of tying.

Fig. 5.—TIE.

The Time for Budding varies with the character of the season. Plums usually come first, Pears on Pear-stock; Apples, Peaches, Cherries, on Mazzard stock; Pears on Quince, and Cherries on Mahaleb follow in the order named.

After Care.—If the bud has formed a union with the stock, or has "taken," it may be known at the end of 10 days or two weeks from the time of insertion. If it succeeds it will remain plump, the portion of bark attached to it will be fresh and bright, while the leaf-stalk that served as a handle, will have ripened and fallen off. Shriveled bud and bark, with the leaf-stalk dried up and holding fast, show a failure. At the end of three weeks the ties are cut and removed, but in some stocks the growth may have caused the tie to strangle before the union is complete, and it must be loosened before it can be removed altogether. The next spring the stock is cut away above the bud, and the whole growth of the tree be confined to that.

Expert Budders work with astonishing rapidity, and consider 1,500 to 2,000 buds a fair day's work, but some will put in 3,000. By practice they acquire a knack of working with the fewest motions; both cuts are made without taking the knife away from the place, and when the stock is in proper condition, the bark is not lifted other than by the bud when it is pushed into its place. These experts have one man or boy to go ahead and strip the stocks, and two to follow and tie.

Fruit Garden.

The fruit for the present season being off of many kinds, preparation for the crop of next year is now in order. With a view to this in

Raspberries and Blackberries, we prefer, for reasons given last month, to cut away the old canes as soon as the fruit is off. Select the new shoots that are to fruit next year, and keep them tied up, destroying all the others. When these reach four feet high in raspberries, and six feet in blackberries, stop them by cutting or pinching off the tip; some prefer them lower than this by a foot. This stopping will cause branching, and the branches should not be allowed to grow over 15 or 18 inches long.

Black-Cap and Purple-Cane raspberries should have the old branches cut out, and if so many new ones start as to make the bushes crowded, remove a part. Stop the remainder at 3 or 4 ft.

Strawberries.—Those who have runners rooted in small pots, may set out this month, and get a good crop next year. Runners from the bed had better be left until next month, unless one can give special care. Plants set now should have all the outer leaves removed, to prevent evaporation, leaving only the bud of undeveloped leaves in the center; spread the roots well; water to settle the earth around the roots, drawing fine soil around the plant, and mulch with stable litter. If a very dry time follows, watering may be needed. While this would not pay in field culture, it may be practised in the family garden, and a good crop, if not a full one, be had next spring.

Grapes.—But little work is now required in the vineyard. Hand-pick the large beetles and caterpillars; apply sulphur on the first appearance of mildew; pinch in the growth of laterals, and remove shoots that push where they are not wanted.

Kitchen and Market Garden.

Beyond the gathering for use or market such articles as are ready, there is less work required in this department now, than in any other growing month; still preparation may be made for a few late crops, and the general care of the growing crops, as set down in the Notes of the last and previous months, will require attention—and weeds—which we always have with us, are quite sure to prevent anything like absolute idleness.

Sowing Seeds may be done for late crops of bush beans, spinach, radishes, and lettuce. Those who wish to try a late crop of peas, should put in the early sorts, but in most seasons they mildew so badly as to be worthless.

Turnips of the Swedes and Ruta-Baga kinds, should have been sown last month, but a fair crop may be generally had by sowing at once. The intermediate sorts, such as Cow-Horn and Yellow Stone, may be sown by the middle, and the flat sorts, of which the Red-top Strap-leaf is best, at the end of the month, or early in September. Lime or ashes, or a mixture of the two, may be dusted over the young plants to keep off "the flea," which is less troublesome than early in the season.

Onions are ready to harvest when the tops of a majority have fallen over. Many growers send to market directly from the field. If they are to be kept, they should be cured a few days in the sun, stacking at night in heaps of a few bushels each, with the tops outward. When stored, spread in thin layers in an airy loft.

Onion Sets are pulled, allowed to dry thoroughly, and spread in an airy place, in a layer not over six inches deep. They must be looked to, and stirred occasionally, during warm weather.

Working of Crops in rows should be continued until the leaves become so large as to stop it. The late cabbages will need frequent hoeing.

Celery should have been put in earlier, but plants set at once will make fair-sized heads. The growth is to be promoted by hoeing and weeding.

Sweet Potatoes should now cover the ground, and keep the weeds down, and need no other care than moving the vines occasionally, to prevent them from taking root.

Sweet Corn.—As soon as the ears are taken from a row, the stalks should be cut up at once, and cured for fodder. If allowed to stand, they will grow woody and become valueless.

Insects will still attack the plants, especially tomatoes, squashes, and all of their family, egg plants, etc., and should be destroyed, as advised in last month's Notes.

Flower Garden and Lawn.

Keeping things in a neat and orderly condition, will require care rather than hard work.....In a dry time, the lawn should not be mowed too closely, or too often.....Keep the ornamental beds in well defined lines, and regulate the hight of the plants.....Give supports to such plants as need them; dahlias, lilies, gladioluses, and others, are often not presentable, unless helped to stand erect. ....Cut away spent flower clusters, except where seeds are wanted.....Insects are always to be kept under; lilies, especially the Japan sorts, are attacked by a small caterpillar upon the under-side of the leaves, and will riddle them, unless stopped —thumb and finger and a squeeze will do it.

Greenhouse and Window Plants.

There is scarcely anything to add to last month's Notes, which mainly had reference to the care of plants placed out of doors. Needed shade, water, and protection against injury, whether from insects or larger animals, are to be given to the plants, whether set outside, or remaining in the house.... The present is a favorable month for doing all needed repairs, whether to the house or the heating apparatus.....Bedding plants may be propagated by cuttings this month and next, for a stock to keep over winter.....Any plants in pots, that are not in healthy condition, may have the soil washed from their roots, and be re-potted with fresh soil, using a pot no larger than before; this treatment is especially beneficial to roses kept in pots, and with other plants will often recuperate them, as well as the usual method of giving larger pots.

American Agriculturist for Aug. 1, 1877.

This Journal comes freighted with a large variety of practical, valuable information, illustrated with over fifty illustrative engravings, among which are three unusually fine ones of Ayrshire and Jersey cattle, with descriptions. This number contains seven columns of directions for August work, nearly a hundred "Basket" items, or smaller articles; a chapter on poor and adulterated Seeds; Ogden Farm Papers; Plans and Descriptions of a $3,200 Dwelling; Among the Farmers, by One of Them; "Farm Talks," on Corn and Potatoes; a variety of Implements and Conveniences with illustrations; Garden and Floricultural pages with fine illustrations; Harvesting and Marketing Peaches; Faith Rochester's Talks with Housekeepers; the Doctor and Aunt Sue interest and instruct the Young People; etc., etc. Single numbers, 15 cents; $1.60 a year. Orange Judd Co., Publishers, New York.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our daily record during the year, show at a glance the transactions for the month ending July 12th, 1877, and for the corresponding month last year:

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 d's *this* m'th	267,500	2,541,000	3,104,000	79,000	197,000	1,281,000
26 d's *last* m'th	231,000	486,000	1,916,100	113,000	89,000	814,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 d's *this* m'th	354,000	2,605,000	4,216,000	119,000	225,000	1,209,000
26 d's *last* m'th	285,000	991,000	5,840,000	121,000	270,000	917,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days 1877..	267,500	2,541,000	3,104,000	79,000	197,000	1,281,000
24 days 1876..	331,000	4,937,000	2,405,000	239,000	141,000	1,216,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days 1877..	354,000	2,605,000	4,216,000	119,000	225,000	1,209,000
24 days 1876..	363,000	2,376,000	2,613,000	143,000	—	986,000

3. *Stock of grain in store at New York.*

	Wheat. bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Malt.* bush.
July 9, 1877..	418,655	368,838	39,838	92,434	925,153	245,432
June 11, 1877..	531,303	520,613	206,815	91,846	836,054	295,129
May 7, 1877..	761,686	468,309	193,046	174,375	317,881	291,654
Feb. 7, 1877..	3,083,819	2,302,261	374,142	671,114	956,114	388,605
Jan. 8, 1877..	3,668,010	3,077,504	341,750	905,615	1,083,104	425,406
Dec. 11, 1876..	3,110,283	3,385,554	218 841	873,310	1,182,322	512,041
Aug. 7, 1876..	2,831,299	904,557	94,960	53,914	1,232,895	434,203
Apr. 10, 1876..	3,393,074	232,140	68,429	200,381	706,233	436,943
July 10, 1876..	5,902,293	663,982	100,741	325,191	1,030,300	307,433

4. *Exports from New York, Jan. 1, to July 11.*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Peas.* bush.
1877..	613,411	4,640,064	10,108,374	747,505	543,151	92,515	150,382
1876..	1,043,423	15,760,390	8,398,861	544,823	8,078	272,584	410,920
1875..	923,289	10,638,507	6,008,198	105,687	165	61,840	218,169
1874..	1,182,196	20,601,800	10,785,099	513,622	240	62,603	253,765
1873..	658,482	6,877,645	6,531,315	199,676	19,236	17,578	53,030
1872..	448,080	4,202,506	11,967,765	586,829	22,656	17,215	115,066

5. *Tide-water Receipts at Albany, from opening of navigation to July 9th:*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Malt.* bush.
1877..	2,300	1,361,800	4,111,100	133,100	310,700	728,200	175,800
1876..	10,100	5,594,100	887,100	243,500	91,000	1,129,700	231,000
1875..	17,200	4,295,800	1,214,300	54,400	—	782,800	423,308
1874..	17,900	8,615,000	4,190,000	174,100	74,100	996,200	—
1873..	32,100	3,256,700	3,518,100	293,100	12,300	810,400	—
1872..	32,200	1,682,800	6,516,600	203,100	451,200	1,561,200	—
1871..	78,700	4,328,300	4,258,000	46,200	40,100	999,600	—

Gold has been up to 106¾, and down to 104¾, closing July 12, at 105⅜, as against 104⅞ on June 12; 107¼ on May 12; 105⅞ on April 12; 104⅝ on March 12; 106 on Jan. 12; 107¼ on Dec. 12, 1876, and 111⅞ on the 18th of July, 1876... Business in Breadstuffs has been on a more extensive scale, but at variable prices, influenced by the European advices, the domestic crop reports, the course of the arrivals at the seaboard, the condition of the ocean freight market, and other less important circumstances. The dealings in Flour have been fairly active, and toward the close at generally firmer rates, Minnesota Extras, and desirable Winter Wheat Extras attracting most attention. New crop Wheat Flour has been arriving moderately, and meeting with a prompt sale, mostly within the range of $9@$10 ₱ bbl, for trade and family extras. Wheat has been more freely purchased, mainly for shipment, leaving off, however, weaker as to values, the offerings having been quite liberal, especially of new crop red and amber, chiefly for August delivery, the transactions in options for which month have been remarkably large within the past few days, principally for export account, closing with No. 2 Red Western (winter) Wheat, seller August, at $1.43 per bu. The opening sale of new crop Amber Wheat, here, some weeks since, was at $2.25 per bushel, for a small lot. The best new crop Amber Wheat, is now quoted at $2 per bushel. New crop No. 2 Spring, New York inspection, for September delivery, sold on Wednesday, July 11th, at $1.33½. Corn has been unusually brisk, the business having been largely at the regular Call, closing at easier rates, under increased offerings. The arrivals at the seaboard now grade higher, as an average, than a month ago. Rye has been recently in better demand, and closed more firmly. On the 11th inst., 17,000 bushels prime State, for early arrival, sold at 93c. Feed Barley has been purchased freely for shipment, at rather stronger figures. Oats have been quite active, but unsettled as to values....More demand has been noted for Cotton, which has been quoted higher....Wool has been more sought after here and at the interior, and has been quoted dearer....Hay and Hops have been rather lightly dealt in at reduced quotations....Tobacco in moderate request at easier rates....Rice brisker and firmer.... Naval Stores and Petroleum, moderately active....Grass Seeds dull....Groceries less active; Sugar and Molasses cheaper....Ocean freights have been more active, and at the close, steadier for Grain; otherwise depressed ... Grain rates by steam to Liverpool closed on the 12th of July at 5 @ 5¼*d.*; to Glasgow at 5*d.*; to London at 6¼*d.*; to Liverpool, by sail, 4¾ @ 5*d.*; London, by sail, 5¾ @ 6*d.*, per bushel. Provisions by steam to Liverpool, 20*s.* @ 40*s.* per ton; Cotton by sail and steam at 3/16 @ ¼*d.* ₱ lb. Grain, by sail, for Cork and orders, at 4*s.* 6*d.*@4*s.* 9*d.*, and to Danish ports, 5*s.*@5*s.* 6*d.* per quarter,

CURRENT WHOLESALE PRICES.

	June 12.	July 12.
PRICE OF GOLD	104 7-8	105 3-8
FLOUR—Super. to Extra State	$5 50 @ 7 35	$5 50 @ 7 25
Super to Extra Southern	5 75 @ 11 00	5 65 @ 11 25
Extra Western	6 35 @ 11 50	6 25 @ 11 25
Extra Genesee	7 50 @ 9 50	7 25 @ 9 25
Superfine Western	5 50 @ 6 25	5 50 @ 6 40
RYE FLOUR	4 25 @ 5 25	4 25 @ 5 25
CORN-MEAL	2 65 @ 3 45	2 65 @ 3 55
WHEAT—All kinds of White	1 85 @ 2 05	1 85 @ 2 15
All kinds of Red and Amber	1 15 @ 2 15	1 00 @ 2 00
CORN—Yellow	62½@ 61¼	60 @ 64
Mixed	57¾@ 60	57 @ 61
White	59 @ 61¼	60 @ 67
OATS—Western	39 @ 61	32 @ 38
State	60 @ 67	56 @ 63
RYE	78 @ 1 00	72 @ 95
BARLEY	50 @ 1 10	50 @ 1 10
BARLEY MALT	65 @ 1 25	70 @ 1 30
HAY—Bale, ₱ 100 lbs	65 @ 1 00	75 @ 95
STRAW, ₱ 100 lbs	50 @ 80	45 @ 70
COTTON—Middlings, ₱ lb	11⅝@ 11¾	11⅜@ 11¾
HOPS—Crop of 1876, ₱ lb	6 @ 17	5 @ 14
" old, ₱ lb	4 @ 10	2 @ 8
FEATHERS—Live Geese, ₱ lb	40 @ 45	38 @ 45
SEED—Clover, ₱ lb	— @ —	Nominal.
Timothy, ₱ bushel	1 90 @ 2 00	1 75 @ 2 00
FLAX, ₱ bushel	1 70 @ 1 85	1 65 @ 1 75
SUGAR—Refi'g & Grocery ₱ lb	9 @ 11¾	8½@ 11⅝
MOLASSES, Cuba, ₱ gal. 30 test	48 @ 50	42 @ 43
New Orleans, new crop, ₱ gal	48 @ 62	45 @ 58
COFFEE—Rio (Gold)	16½@ 20½	17 @ 21¾
TOBACCO, Kentucky, &c., ₱ lb	4½@ 18	4 @ 14
Seed Leaf, ₱ lb	4½@ 50	4½@ 50
WOOL—Domestic Fleece, ₱ lb	70 @ 76	52 @ 55
Domestic, pulled, ₱ lb	20 @ 39	20 @ 42
California, spring clip	13 @ 28	13 @ 35
California fall clip	10 @ 20	10 @ 25
TALLOW, ₱ lb	— @ 8	7½@ 8¼
OIL-CAKE—₱ ton	26 00 @ —	24 00 @ 34 50
PORK—Mess, ₱ barrel	14 15 @14 25	14 35 @14 40
Extra Prime, ₱ barrel	11 00 @11 50	10 00 @ 10 50
BEEF—Plain mess	12 00 @13 00	11 00 @12 00
LARD, in trcs. & bbls, ₱ 100 lb	7 75 @10 00	8 25 @10 10
BUTTER—State, ₱ lb	12 @ 23	13 @ 23
Western, poor to fancy, ₱ lb	10 @ 23	9 @ 22
CHEESE	5 @ 12¾	3 @ 9¾
BEANS—₱ bushel	2 80 @ 3 85	2 25 @ 3 50
PEAS—Canada, in bond, ₱ bu	— @ 1 00	90 @ —
EGGS—Fresh, ₱ dozen	14 @ 16½	14½@ 17¾
POULTRY—Fowls & Chickens	10 @ 16	10 @ 16
Chickens, spring, ₱ lb	20 @ 25	20 @ 24
Turkeys—₱ lb	10 @ 16	10 @ 16
Geese, ₱ pair	1 12 @ 2 70	1 12 @ 1 20
Ducks, ₱ pair	65 @ 1 00	60 @ 1 00
Roosters, ₱ lb	6 @ 7	6 @ 7
PIGEONS, wild, ₱ dozen	1 25 @ 1 50	1 25 @ 1 50
Squabs, per dozen	Nominal.	50 @ 1 00
TURNIPS ₱ bbl	75 @ 1 00	— @ —
" ₱ 100 bunches	— @ —	1 50 @ 2 00
CABBAGES—₱ 100	— @ —	2 00 @ 6 00
ONIONS—new, ₱ bbl	— @ —	2 75 @ 3 00
" ₱ crate	1 00 @ 1 50	1 00 @ 1 50
LETTUCE, ₱ bbl	50 @ 1 00	50 @ 1 00
CARROTS, ₱ dozen bunches	— @ 37½	— @ —
POTATOES—new, ₱ bbl	2 00 @ 3 75	1 50 @ 3 50
SPINACH, ₱ bbl	50 @ 75	— @ —
TOMATOES, new, per crate	1 25 @ 3 50	1 00 @ 2 50
BEETS, ₱ 100 bunches	2 50 @ 4 00	1 50 @ 2 25
RADISHES, ₱ 100 bunches	50 @ 87½	50 @ 75
ASPARAGUS, ₱ doz. bunches	1 00 @ 2 25	— @ —
STRING BEANS, ₱ bag	— @ —	50 @ 1 00
RHUBARB, ₱ 100 bunches	1 25 @ 2 00	1 00 @ 2 00
CUCUMBERS, ₱ crate	1 50 @ 2 25	1 00 @ 3 50
BROOM-CORN	3½@ 8½	4 @ 8
GREEN PEAS, ₱ crate	2 50 @ 4 00	— @ —
WHORTLEBERRIES, ₱ bush	— @ —	2 75 @ 3 50
" ₱ qt	— @ —	8 @ 12
APPLES—₱ barrel	1 00 @ 4 50	1 25 @ 4 24
STRAWBERRIES, ₱ quart	5 @ 15	— @ —
SQUASH, ₱ basket	— @ —	30 @ 50
PEANUTS, domestic, ₱ bush	1 00 @ 1 20	1 20 @ 1 50
PEACHES, ₱ crate	5 00 @ 6 00	1 00 @ 3 50
GOOSEBERRIES, ₱ bush	1 50 @ 2 00	75 @ 1 25
RASPBERRIES, ₱ 1-3 cup	— @ —	2 @ 5
CHERRIES, ₱ lb	— @ —	6 @ 12
CURRANTS, ₱ lb	— @ —	6 @ 10
BLACKBERRIES, ₱ qt	— @ —	8 @ 15

New York Live-Stock Markets.

RECEIPTS.

WEEK ENDING	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
June 18	12,301	99	4,683	26,845	23,962
June 25	9,153	80	4,239	24,688	19,075
July 2	9,623	45	5,160	25,129	22,787
July 9	9,697	59	3,456	21,921	18,108
July 16	9,816	87	4,108	22,008	18,233
Total for 5 Weeks	50,590	380	21,646	120,121	102,067
do. *for prev. 4 Weeks*	38,982	260	10,334	83,673	84,146
	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	10,118	76	4,329	24,024	20,413
do. do. *last Month*	6,745	65	4628	20,946	20,691
do. do. *prev's Month*	13,561	66	4,350	18,062	21,117

Beeves.—Immediately after our last month's report was closed, the market took a jump, and reached an average of 12¼c. ₱ lb., on very mixed sales. Dealers apparently "lost their heads," and laid up trouble for themselves. Within a week a sudden fall of 1c. ₱ lb., brought grief on several, and before the month ended one or two failures, with other causes, helped to depress the market. As a proof of the soundness of our judgment with regard to the exceptional character of the export trade, we note the falling off in shipments, along with the higher average of prices here. The margin of profit, always small, has grown smaller than nothing, and it is simply to keep things together that the business is sustained. The past month there have been only about 3,000 head of dressed cattle sent out, and about 1,000 live animals. The hot summer weather, of course, has something to do with this, but this always will act as an accessory to low prices in reducing profits. The market closed with a higher average, but really lower prices, because the quality was much higher than usual. Low grade native steers, of 55 to 56 lbs. ₱ cwt., sold for 10 @ 10¼c. ₱ lb., good natives, 57 lbs., at 11¼ @ 12c., and extra, 58 lbs., at 12¾c. ₱ lb., with a dull dragging market.

The prices for the past five weeks were as follows:

WEEK ENDING	*Range.*	*Large Sales.*	*Aver.*
June 18	9¼@13¾c.	10¾@12¾c.	11¾c.
June 25	9 @13¾c.	10½@12¾c.	11¾c.
July 2	7½@13¾c.	11 @12 c.	11¼c.
July 9	7 @13¾c.	8 @12¾c.	10¾c
July 16	8¾@12¾c.	10 @12¾c.	11¼c.

Cows.—After a dull week at the beginning of the month, during which poor stock was worked off, a better business was apparent with an advance of $5 per head on good cows. Poor cows are almost unsalable at any price. Common to fair cows sold at $45 to $50 per head, extra good animals brought $70 to $75.... **Calves.**—With a considerable falling off in supply, veals have done better, there being a good demand for fat veals at 7c., 7¼c.@8c. per lb. alive... **Sheep.**—Sheep and lambs are lower after a pretty steady business during the month. 1,100 fat sheep have been exported. Poor sheep sold for 4c., 90 to 120-pound sheep brought 4¼c.@5c. per lb., and prime stock reached 5¼c. Thin lambs sold for 5¼c.@6c., and the best Jersey and Canada lambs at 7¾c.@8c. per lb. live weight.....**Swine.**—A dull market for hogs has been experienced through the month, and there is no change to note at the close; 160 lb. hogs selling at 7¼c. dressed; heavy hogs at 6¾c.@7¼c., and pigs at 7¼c. per lb. dressed.

Prices of Feed.

Bran, per ton	$18.00@$20.00
Middlings, per ton	19.00@ 21.00
Ground Feed, per ton	15.00@ 21.00
Linseed-oil-cake, western, per ton	44.00@ 47.00
Cotton-seed-cake, per ton	25.50@ 40.00
Chandler's Scraps, per lb	3@ 4

Prices of Fertilizers.

No. 1. Peruv. Guano 10 p. ct. ammonia, standard, ₱ ton	$56.50
do. do. Lobos, do. do, do	47.50
do. do. guaranteed, ₱ ton, cargo C	56.00
do do. rectified, per ton, 10 p. c.	66.50
Mapes' Complete Manure (Ville formula) p. 1,000 lbs	26.14
do. Wheat and Grass Manure, ₱ 1,000 lbs.,	27.00
do. Tobacco do. do.	24.67
do. Turnip do. do.	19.36
do. Bone, strictly pure, fine ....per ton.	40.00
do. do. do. medium do.	37.00
do. do. do. coarse do.	35.00
" Dissolved Bone, 15 per cent..... do	40.00
Quinnipiac Fertilizer Co's. Phosphate, per ton..	40.00
" " Dry g'd Fish Guano, ton 9 p. c. am'a	42.00
" " Pine Island Guano, per ton.	42.00
Stockbridge Corn Manure, (Boston) per acre...	22.00
" Potato do do do	12.00
" Tobacco do do do	60.00
Bowker's Hill and Drill Fertilizer, per ton.....	45.00
German Potash Salts, (25@35 per cent), per ton.	20.00
Gypsum, Nova Scotia, ground, per ton.....	7.00@8.00
Nitrate of Potash (95 per cent.), per lb.	9½c.
Sulphate of Potash (actual potash 44 per cent) per lb....4 c.	
do. do. (actual potash 27½ per cent) per lb 2 c.	
German Potash Salts (actual potash 12 to 15 p. c. p. ton	$30.00
Muriate of Potash (actual potash 50 per cent), per lb...2½c.	
Nitrate of Soda, per lb.....	4½c.@ 5 c.
Sulphate of Ammonia (25 per cent.), per lb....	4½c.@ 4½c.
Dried Blood or Dried Meat (ammonia 14 per cent) p. ton	$50

containing a great variety of Items, inc'uding many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.

Publishers' Notices, Terms, etc.—The Annual Subscription Rates of the *American Agriculturist*, postage prepaid by the Publishers, are: One Copy, $1.60 a year; *Two* Copies, $3; *Three* Copies, $4.20 ($1.40 each); *Four* Copies, $5.20 ($1.30 each); *Five* to *Nine* Copies, $1.25 each; *Ten* to *Nineteen* Copies, $1.20 each; *Twenty* Copies and upwards, $1.10 each; Single Numbers, 15 cents, post-paid.—The above terms are for the United States and Territories, and British America. To the above add 14 cents extra per year for papers delivered by mail in N. Y. City, and for copies sent outside of the United States and British America, *except* to Africa, Brazil, British Honduras, the East Indies, and Mexico. For the last named five countries the extra charge is 88 cents per year, to cover extra postage; Single Numbers, 17 cents, post-paid.....**Remittances,** payable to Order of Orange Judd Company, may be sent in form of Checks or Drafts on N. Y. City Banks or Bankers or P. O. Money Orders; or in Registered Letters, such letters to have the money enclosed in the presence of the Postmaster, and his receipt taken for it, and the postage and registering to be put on in stamps. Money remitted in any one of the above three methods is safe against loss..**Bound Volumes** from Vol. 16 to 35 inclusive, supplied at $2 each, or $2.50 if to be sent by mail. Sets of numbers sent to the office will be bound in our regular style for 75 cents (50 cents extra if to be returned by mail). Missing numbers for such volumes supplied at 12 cents each.—**Any Numbers** of the paper issued for 20 years past, sent post paid for 15 cents each.... **Clubs** of Subscribers can be increased at any time, at the club rates, if new members begin at same date as original club.

The Fairs.—While we have received a larger number of notices than usual up to the present time, we would renew our request to Secretaries of the various State, County, and other Societies, who have not already sent, to forward us *at once*, the time and place of their coming fairs. If posters or programmes are not yet ready, postal cards are, and it helps greatly towards the accuracy of the list, to get the data from headquarters.

New York Horticultural Society.—The following prizes awarded to Sam'l. Henshaw, gardener to Mrs. Greene, New Brighton, Staten Island, were accidentally omitted. Mr. H. took the first prize on cucumbers, a fine pair of Telegraphs. He was also awarded a special premium for Brown Turkey Figs.

The Death of Charles O. Judd.—In April 1869 it was our sad duty to record the death of Mr. Judd's then oldest son, William Orange,—a youth of great promise and of such early developement that though only 13 years of age, he was nearly advanced in his studies to enter college. Charles O., who was after Willie's death the eldest of three boys, was in Wesleyan University at Middletown, Conn., where he had just completed his Junior year, and had passed a most creditable examination preparatory to entering the Senior class. The exercises of the Commencement Week were to include an exhibition in the Gymnasium, and as Charlie had been one of the best athletes during his first two years, he was urgently solicited to assist in the preparation. He had, however, outgrown a love for such exercises, and his parents were also opposed to it. But at the last moment, as a matter of accommodation, he went in to aid the others a little, and on June 23d, while showing a simple performance on a low cross-bar, he dropped a few feet upon a mattrass, as he has often done from much greater hights, and striking upon his head, he in some unaccountable manner shattered the fifth cervical or neck vertebra, and severely injured the spinal cord, as it was found after death. He was taken home, and the best medical aid was called. All below the neck being not only paralyzed, but without sensation, the case was from the first pronounced exceedingly grave, but as recovery had, though rarely, followed similar accidents, the family had still the very slender hope to cling to, that Charlie, being of a most robust constitution and of vigorous habit, might prove to be one of the exceptional cases. The fact that he survived beyond the time at which such injuries are usually fatal, seemed to be in his favor; but all care and hope were vain, and after lingering for 16 days, with his mental faculties unimpaired, except when occasionally under morphine to allay pain in head, he gradually grew weaker until July 9th, when death came to his relief,—a death for which the comforting assurance that he was well prepared, remains for the loved ones who survive him. Charlie was a young man of very quiet disposition, and inheriting much of the mechanical talent and practical turn of mind of his father, he had a special fondness for mathematical studies and the natural sciences. A promised career of future usefulness is thus suddenly ended at the early age of 19, and by an accident that in itself seems so trivial, that it shows in a manner so forcible as to be startling, by what a slender tenure are held our own lives and those upon which our hopes are built. Of course this occurrence cast a gloom over the usually joyous Commencement Anniversary. Of the grief it brought to the household, this is not the place to speak. When we state that this is the fifth time the father has been called to mourn the loss of an eldest son, every parent will feel that it is a bereavement of peculiar sadness, and one of those dispensations so beyond human scrutiny, that we can only bow in submission, knowing that the Hand that taketh away is the Hand that gave.—[We have written the above in the absence of Mr. Judd, believing that his many friends will be interested in knowing the particulars here given. EDS.]

The Death of C. H. Walton.—The "Florida Agriculturist," of June 30th, announces the death of its founder and publisher, Mr. Walton, at Tallahassee, Fla., on June 27th, of consumption.

Swine Husbandry—Now Ready.—The work, by F. D. Coburn, of Pomona, Kas., announced last month as in press, is now ready. It forms a handsome volume of 275 pages, and is "chock full" of solid meat. The author is himself a breeder of swine on a large scale, and in addition to his own wide experience, gives that of other practical men who have long been engaged in this important branch of agricultural industry. We like to see an author who does not think that he knows all that is worth knowing on his special topic, and is willing to give others credit for labors in the same field with his own. In this volume Mr. Coburn has introduced papers, or copious abstracts of papers, of great value, but which are hidden in the reports of societies and elsewhere, and hence not accessible to the public in general. An example of these is an essay by Joseph Sullivant, Esq., of Ohio, on "Hog-Feeding and Pork-Making," which is of itself worth the price of the book. The division of the work which will be most eagerly consulted, is that devoted to the "Diseases of Swine," where, as mentioned last month, all that is known about that scourge, the "Hog Cholera," is here brought together, and the information upon this, as upon all other subjects, is up to the most recent date. Being a western man, the work has a decided western flavor, so to speak; while principles are the same everywhere, practice is greatly modified by locality; in certain Western States the conversion of the staple product, Indian corn, into pork, has an importance it can not assume in States where the agriculture is more varied, and its operations upon a smaller scale; while the work is none the less useful to the farmer or villager who keeps but few animals, this is the only one within our knowledge that gives the methods of managing hogs in large numbers. Indeed, there seems to be no topic relating to the subject, that is not plainly and intelligently treated, even to putting down the family supply of pork, hams, and bacon, and we are sure that the work will be generally acceptable to farmers in all parts of the country. Published by the Orange Judd Company, and sent, post-paid, on receipt of price, $1.75.

An Honor Well Bestowed.—So long as conferring titles and bestowing orders are in many countries the customary methods of rewarding distinguished services, we are glad to see them sometimes fall to others than those eminent in the arts of war. Every horticulturist will be glad to know that Doct. Joseph Dalton Hooker has been thus honored by his Sovereign. His election, within a few years, as President of the Royal Society of England, was a really greater honor, as he was placed there by the votes of the most eminent scientific men of England, and it is generally regarded the highest honor these men can pay to one of their peers. Doct. Hooker is one of the few leading botanists of the world, and as Director of the Royal Gardens at Kew, he occupies a position in which he has been able to do much for horticulture; while pre-eminent as a scientific botanist, he is none the less practical, as his labors in the introduction and cultivation of the Cinchona, or Peruvian Bark trees into India, and the introduction of other useful plants into these and other British possessions are evidence. In view of his services to science and the national welfare, the Queen has made him a Knight of the Order of the Star of India. This honor is accorded to but very few, and we are sure that none of the select company of the Order have better deserved it, or will wear it more modestly, than Sir Joseph Dalton Hooker, K.C.S.I.

How Nebraska Looks.—One of our associates who is making a Western trip thus summarizes his observations in Nebraska. Writing from Lincoln he says: Have travelled the entire length of the State, distance about 500 miles, visiting the majority of the counties. Crops promise a great yield. Corn is backward, owing to June rains, but is now coming rapidly forward. Grasshoppers are *non est*. Apprehensions regarding them being dismissed. Farmers in good spirits, and in hopes of reviving emigration, which stopped two years ago. Farmers are paying too much for money, 12 to 20 per cent, and buying too much machinery on credit. Mennonites and Bohemians are settling here in considerable numbers. Cattle in the western, which is the grazing portion of the State, are looking fine.

Putting Down Butter.—While the butter made in September has not usually the rich flavor of that made in June, next month's product is mainly that which is put down by farmers and dairymen for the winter's supply. Much of the success in keeping butter depends upon the quality of the salt used in packing it. If the "Domestic Society" (there is much more of the name) of the little State of Rhode Island, was not the first to discover, it was, we think, the first to publish the fact, that the poor keeping of butter was due to impurities in the salt. They had analyses made of the various brands of salt, and it was found that those kinds that were found best in practice, were shown by analysis to be the least contaminated by salts of magnesia. Among the various brands of salt in the market, none bears a higher reputation for purity, than that known as "Ashton's Factory Filled," and so firmly is this reputation established, that in some important butter-making localities, no other brand can be disposed of. The quality of the salt is of so much importance, that butter makers, if none is sold near at hand, had better order it from New York, than to risk the use of a brand, the purity of which has not been tested.

The Rural New Yorker has experienced another change in its management. Mr. A. S. Fuller, the former editor, and Mr. G. A. C. Earnett, publisher, both retire from their positions on the "Rural," having disposed of their interest to Mr. E. Carman, one of the joint proprietors, who thus assumes entire control.

Screws vs. Stitches.—The writer, when a boy, once heard an old gentleman, who was himself an excellent mechanic, say that there was one product of human industry that had reached perfection, and in which no further improvement was possible—that was a well-made boot. The old gentleman did not foresee that screws of brass wire would supersede stitches of flaxen thread, for the "Standard Screw Machine" had not been invented, and the "McKay Metallic Fastening Association" was not then thought of. This most ingenious machine, being supplied with a coil of wire, upon which is cut a continuous screw-thread, automatically cuts this wire of the proper length, and screws the pieces into the boot or shoe, as near or as far apart, as may be desired, fastening the parts together with a firmness and solidity

not to be attained in the ordinary methods. The machine, made by the "McKay Metallic Fastening Association," of Boston, is an improvement upon that formerly made by the "American Cable Screw Wire Co.," noticed a year or two ago, and while it embodies all the good qualities of that, there are important inventions added, one of the most essential being that of turning the wire-fastening into the leather, just as a wood-screw is driven into wood. Each machine is capable of bottoming 250 to 300 pairs daily. An inspection of the work will at once show its great durability, which is attested by the fact, that shoes made in this manner are exclusively used in the U. S. army. One of our associates, who had a pair of boots, which were fastened in this manner, complains that he became tired of them, as they were so long in wearing out. Those of our readers, who wish to try boots or shoes made with the "Standard Screw," should not apply to the Company above named, as they make only the machines to supply to manufacturers, but to their shoe-dealer. There are a plenty of such in the market, and the dealers can readily procure them, if there is a demand for work put together by the "Standard Screw."

Woodward's Drawing Studies, and Alphabets.—These are two serial works by Geo. E. Woodward, and published in monthly parts by W. H. Stelle & Co., New York. The Studies in Drawing are from original designs by some of the leading French artists, and have a freshness that contrasts quite favorably with the old and hackneyed drawing books, and are well suited to class or home instruction. The work on Alphabets contains the greatest variety of letters, monograms, and titles. All who have lettering of any kind, whether on signs, paper, or embroidery to execute, will find here an almost inexhaustible series of examples in every known style. Each work will be completed in 24 parts, five of which are now ready, and two more will be added each month. Sold by subscription at 50 cents a number, each number containing eight beautifully executed quarto plates.

The Plague of Insects.—The prevalence of insects of different kinds and degrees of destructiveness which has been experienced during the present season has not been confined wholly to America. The French farmers have also suffered from insects. Cockchafers have been so abundant in some departments that rewards have been offered for their destruction; $100 procured the capture of 10,000 gallons of the insects. These depredations, which have occurred about once in every three years, have led to the passage of a law for the protection of small birds against the so-called sportsmen. It is time we took a lesson from the French.

American Veterinary Review.—The fifth number of Vol. 1 is received. With the exception of a communication of a needlessly severe personal nature, and which we are sorry to see in this otherwise excellent magazine, it is filled with useful matter. A case that is interesting to farmers and shepherds, is one of some lambs of the Central Park flock, which were sick for a few days, taken with convulsions, turning round in a circle, and finally dropping down, would die. On examination, the small intestine was found filled with tapeworms, (*Tænia expansa*), some of them being 15 feet in length. The brain was congested. Although no cause is assigned for the presence of these parasites, it is easy to fix it as being due to long pasturing the same ground by this flock. Every shepherd knows, or should know, the danger of this practice to the lambs of the flock.

Castor Pomace as a Fertilizer.—The refuse of the castor-oil mills is a valuable fertilizer. It is rich in ammonia, containing by an old analysis of Prof. Johnson about 6 per cent, and by a recent analysis 7½ per cent. It also contains potash and phosphoric acid; but its chief value is in its ammonia. It is now largely made in St. Louis, and can be procured at any part of the country from that central point very cheaply. At $10 a ton, which is its price at the oil-mills at St. Louis, the ammonia costs less than 7 cents a pound. For making compost with swamp muck, earth, or refuse of any kind, there is no better or cheaper material than this. Messrs. Robt. B. Brown & Co., of St. Louis, who manufacture this substance largely, inform us that it has heretofore been shipped to England, where every fertilizer that can be procured is eagerly sought and secured. It is a pity and a loss that every valuable waste product of this kind should be sent out of the country, but there are very few farmers or gardeners, who know anything of this peculiar fertilizer. It is furnished as a coarse dry powder, in excellent condition for composting, or for applying at once to crops in any way that may be desirable.

Lobos Guano.—Messrs. Hobson, Hurtado & Co., agents of the Peruvian Government, have issued a circular intended to show farmers the difference in quality and uses between the Lobos and other guanos. The average composition of Lobos, in percentages, is: ammonia 6, phosphoric acid, 15 to 20, and potash 3 to 5. They commend it as the best and cheapest general fertilizer, and superior, except for such crops as require a highly stimulating fertilizer, to the Standard Guano, with 10 per cent of ammonia. For winter wheat they advise 200 lbs. of Lobos guano to the acre, with the seed, and in the spring, when the growth needs to be accelerated, to supplement this with a dressing of high-grade guano, at the rate of 100 lbs. to the acre.

Prizes for Tree Planting.—That venerable and useful association, the "Massachusetts Society for Promoting Agriculture" have undertaken, what really belongs to the State to do—to encourage tree planting and cultivation in Massachusetts by offering several premiums each for plantations of White Ash, White Pine, Scotch Pine, and European Larch. Not only are the premiums, to be awarded in 1878, liberal, but the Society goes still further, and offers to gratuitously aid competitors in procuring seeds and trees from dealers at home and abroad. With all these inducements, added to the real value of the plantations when made, we shall be surprised if the competitors are not numerous. The conditions of the offers and all other information concerning them may be had on application to Francis Skinner, Esq., Brookline, Mass.

A Very Desirable and Attractive Home is advertised on page 316. Probably no more eligible place could be found in the whole country, for a family of some means, to remove to, temporarily or permanently, for the purposes of education, securing excellent society, etc.

Economy in Feeding Chickens.—It is in the small economies that the farmer must look for his profits, and a saving can be made even in so small a matter as feeding chickens. Where there are many fowls raised, throwing the food for chickens directly upon the ground, causes a waste, which in the aggregate amounts to considerable, and which can be saved by the use of Fowler's "Economy Iron Feeder." They are very simple in construction, easily kept clean, and keep food and water in an accessible and pure condition.

Blindness in Pigs.—"P. & Co.," Galveston, Texas. There are some poisonous plants which, acting strongly upon certain nerves, paralyze them. Thus the brain or optic nerve being affected by one or these, blindness would be the result. A plant known as "Paint-root," which is common in the South, acts in this manner upon white pigs, and possibly also upon very young black ones. This plant was described in the *American Agriculturist* of March, 1876. It may possibly be the cause of the trouble amongst your swine. Young pigs regain their sight when removed from the poison, and old ones, although permanently blind, will fatten readily.

Convention of Short-horn Breeders.—The report of the 5th Annual Convention of the breeders of Short-horns, which was held at St. Louis, Mo., December, 1876, has been received. The proceedings were of great interest, not only to breeders of this class of stock, but to farmers generally. Their discussions go to show that the day of enthusiasm, if not of extravagance, is past, and that the period of useful public service has arrived. There is now a surplus of bulls in breeders hands, and a process of weeding may be begun. If this is done with regard to intrinsic value, and not to pedigree alone, some weeds of high lineage, but of very little value, will be got rid of, and some new but promising families, may come "to the fore." Now is the time to popularize the breed; make steers of some of the bull calves and show what stuff these animals are made of in the butcher's stall. This is the way in which their old reputation was made, and in which it was kept up, until of recent years, when the Herd-book record was made to cover a multitude of imperfections. At reasonable prices, good young bulls can be sold to farmers, and good cows to dairymen, and if the modern Short-horn can be brought to the pail with as much profit as was the first Duchess, there is a long and useful history ahead for them, as the farmers' and dairymen's cattle.

How Eggs are Preserved.—The process of dessicating or drying eggs has given rise to a considerable industry. The American Egg Comapny, of Keokuk, Iowa, uses daily 3,000 dozen of eggs, although the business is as yet in its infancy. The U. S. Egg Dessicating Company of St. Louis, also does a large business, and other factories are being put into operation. The process is as follows: The eggs after careful candling, are broken and cleared of their shells by machinery and delivered in the form of a batter, the whites and yolks thoroughly combined. The batter is then discharged by a peculiar arrangement, upon rapidly revolving metallic cylinders, under a strong blast of heated air. These cylinders are automatically self-cooling, remaining at a temperature of 70° Fahrenheit, and so maintaining at that point all the egg dried upon them, in spite of the greater heat of the blast. The dried egg is scraped from the cylinders in a granulated form, very much resembling coarse corn meal, and is subjected to a subsequent curing process which lasts about thirty days. The dessicated egg readily dissolves and returns to its former condition of "batter" when the requisite proportion of water is added, and thus, if beaten the same as fresh eggs, it gives the same results in cooking. As five hundred dozen of dessicated eggs are packed in a single barrel, the saving in transportation is enormous, and the other savings from loss by breakage, decay, &c., can be more easily imagined than estimated.

Sundry Humbugs.

We have before stated that, however we may feel indignant at the folly of those who allow themselves to be victimized, there is much in the Humbug correspondence to touch our sympathies. It often happens that people, too honest themselves to be suspicious of others, are tempted by plausible offers to invest all their little means in some scheme which proves to be a swindle, and when they become aware of the fact, they write to us for help. Of course, money lost in this way is irrecoverably gone. The letters setting forth the loss, show so much real distress, that we have not the heart to say: "Served you right, you ought to have known better." Though we treat many cases with ridicule, that being the most efficient method of showing them up, the writing up of the "Humbugs" is by no means a pleasant occupation. We probably read 20 or 30 letters for every one mentioned in these columns, and this correspondence is not calculated to put one in a cheerful mood, or to give him an exalted opinion of human nature. To spend hours in going through our monthly accumulations of letters, and to read continuously of schemes of fraud on the one hand, and the complaints of victims on the other, interspersed by questions from persons, as to whether this or that scheme is a humbug or not, is almost enough to make one, for the time being, think that mankind are divided into two classes, the knaves and their dupes, and we turn from the task, when completed, with the same feeling that one leaves a hospital, which he has visited as a matter of duty. Still there is now and then

A GLEAM OF FUN

to be met with; perhaps rather sombre fun, but still a relief from the otherwise unbroken sadness. The chap who offered for 25 cents to tell how to write without pen or ink, has met with a rival. The information which this chap gave—"Write with a pencil"—was perhaps worth the amount to one who did not know it before. A later one—or it may be the same in a new guise—proposes for the same modest sum of one-fourth of a dollar, to tell people "How to get rich," something at all times desirable to know, and in these times of general dullness likely to be eagerly sought after, and we have no doubt that the quarters came in so rapidly, that the advertiser, if no one else, became more or less rich from the advertisement. The recipe returned for the money is: "Increase your receipts, and decrease your expenditures."—— Volumes could not tell more, and on the whole, we doubt if we are right in putting one who gives so much for the money, in the Humbugs at all. This man is an improvement upon the New England Judge, who said: "The most compendious way of making money is to buy goods very low, on a long credit, and sell them very high for cash"——but this advertising man is the "compendiousestest."....An eminent professor in a leading University writes "I get

MANY CURIOUS LETTERS,

but this is one of the most curious," and incloses the following from a town in Saratoga Co., N. Y.: "Dear Sir, could you charge a pease of steel or iron with electricity for the purpose of mineing, I would like a bar about 3 ft. long and 1 in. in diameter charged for lead, silver, and gold," and wants to know the cost, etc.—Here is the cropping out of a humbug, that has existed in one form or another since very early times—the divining rod, which has been used by those who pretend to discover not only water veins, but metallic veins below the surface. Originally the divining rod was of hazel; in this

country Witch-Hazel is used, (but in this case "witch" is from "wych," of very different meaning, and has nothing to do with sorcery), and sometimes metallic rods are employed. Electricity is made responsible for many absurd things, it being very common for people who are too conceited to say "I don't know," to ascribe phenomena that they can not explain, to electricity, and we have no doubt that the writer of the above letter is honest in his belief, that a rod can be so "charged," as to discover metals, and that the charge can be varied to suit the different kinds of metals. Men of respectable standing in the community, even professors of religion, who have "renounced the devil and all his works," have within our knowledge employed "water-witchers," to point out the place for digging a well, and we have even known persons, who have had what is called a "liberal education," to believe—or say they believe—in the efficacy of the divining rod. When men who should know better, countenance such folly, we can not wonder that those with fewer advantages should believe in divination..... The old fable of

THE MONKEY, THE CAT'S PAW, AND THE CHESTNUTS,

finds its application in some of our correspondence. One, in writing us about a swindling affair, says: "Now I want to have you do your duty, and expose these rascals, or *I shall lose confidence* in you."—The italics are his.—Just see what follows: "I do not want to have you reveal to any one my name, as it might get me into trouble." A jug-handle is not the only one-sided thing in this world. Our correspondent must not be got "into trouble," but it is our "duty" to get into trouble by exposing the persons he says have swindled him. We fear that we must "lose confidence," rather than purchase it at that price. ....As a general rule it will be safe for

FARMERS TO REFUSE ALL AGENCIES,

as the risk of getting swindled is altogether too great. Traveling agents come along, and propose to farmers to take an agency to sell this or that thing. The story is a plausible one; the farmer is to be the only agent in the vicinity, the goods are of a salable kind, and need not be paid for until sold, while the profits, to the farmer who sees but little ready money, seem so liberal, that the offer is a really tempting one. Still we say, don't do it. If all were as represented, it would be another thing, but there is quite sure to be a catch somewhere—some "arter-clap," as old Col. D. used to say, and the chances are so great that a traveling agent of this sort is a swindler, that it is the safest to give them all a wide berth. One lady in Illinois writes that the agents of a washer of some kind were along, proposed to make her husband agent, and to leave two or three machines; so far all was right; but before they left, they wanted him to sign a note for two dozen more, which were *to come*. Having read our cautions, the husband would not sign the note. The fact that the agents claimed to be from Indianapolis, while letters must be directed to New York, and their circulars were printed in Iowa, made the lady think that they were too much scattered to be safe.

THE SPRING BED SWINDLE

is another of these agency affairs that farmers should look out for. It appears to be mostly carried on in New England. A smooth-tongued chap comes along to establish agencies on behalf of the manufacturer; he finds some one willing to act as agent for the sale of the goods, from whom he gets an obligation to pay for the goods when sold, and an order for the goods to be sent. The beds come, the agent pays freight, and takes them home. In a few days a party claiming to be the manufacturer comes along to collect the bill. The agent says that the goods were only to be paid for when sold, but this is laughed at; they never sold goods in that way; no one had authority to make any such terms; there was the agent's order for the goods, and there was the bill (some $200 or $300), and if it was not paid at once, it would be put in the hands of a lawyer for collection. The pretended manufacturer understands the bluff-game, and too often succeeds in frightening his victim into paying the bill, or in settling the matter by giving him $50 to take away his beds. One of our readers, who had accepted the agency, and was called upon and threatened, wrote us for advice in the case. Our advice was to stick to the agreement, and let him sue. We afterwards learned that a lawyer from a neighboring town came to collect the bill; finding he could not get the amount, he proposed to settle for $75, then for $50, and then for $25, and take the beds back, but our correspondent would pay nothing, and agree to do nothing, except take the beds to the depot, which he did, and comes out of the transaction minus the freight he paid when he took them. This shows that in such cases

FIRMNESS IS A GOOD INVESTMENT.

We have heard of four instances in as many other towns, in which the victims were bullied into paying. But what kind of a lawyer was that who was aiding and abetting a swindler from another State in trying to squeeze money out of his own neighbors? It strikes us that a highwayman who boldly demands your money is rather the more respectable of the two....Here is an

OLD SWINDLE REVISED AND IMPROVED.

We some months ago showed up the nice little ways of the "Mercantile Prize Association," which sent out notices all over the land, in which the one who received the document was informed that he had drawn a melodeon, valued at $125, which would be forwarded upon the receipt of $7.50 for express charges, packing, etc. We have not heard of the concern of late. Can it be that that was the grub, of which we have now the full-blown beautiful butterfly of the

GREAT PRIZE DRAWING ASSOCIATION OF AMERICA?

The other was only a poor one-horse Yankee concern; this is of the Dominion of Canada, a part and parcel of that Empire, whose "morning drum-beat" * * "circles the earth," etc., etc. None of your trumpery melodeons this time, but a full-rigged piano—worth no paltry $125—but a round $500—and all to be had for sending $5. Yankee swindler, bow down in deference to the immense superiority of your Canadian brother. The gentleman who sends us the circular is indignant that it should have been sent to his son, "who never had any such ticket."—Good sir, these swindlers know poor human nature better than you seem to; they know that these circulars appeal to the cupidity of those who receive them; they know that hundreds will not stop at the fact that they never had a ticket, and admit a lie, in the presence of the offer of something worth $500 for $5. Hundreds send them $5—get no return, and feel that they have been swindled. As they were willing to take advantage of the statement that their ticket had drawn a prize, when they knew that they had no ticket, we do not think it much better than a case of the pot and kettle....Having heard nothing of late of

"THE SILVER MOUNTAIN MINING COMPANY,"

when a couple of months ago every mail brought inquiries, we supposed it had gone the way of all such things. But recently the "N. Y. Times" has devoted special attention to the company, and as we get so little help in the Humbug war, we with pleasure acknowledge that it has treated this case very thoroughly and exhaustively in its issues of June 25th and July 2d. It seems that the office of the concern has been moved from far up Broadway to far down the same street, and has continued to send out the same attractive circulars, and issue certificates of stock, which represents lots of mining going on in the engravings, even if there is not so much as a hole in the ground at Silver Mountain. The investigations of the "Times" reporter show that it is simply an old foe with a new face, another devel-*ope*-ment, (as Agassiz used to say,) of an old deviltry. That

THE SILVER MOUNTAIN MINING COMPANY, THE WYOMING LOTTERY, AND OTHERS,

are all off of the same piece of goods, and the same persons are concerned in all these, and perhaps other swindles. The heads and front of all, according to the "Times," is Pattee, widely, if not well known in Wyoming, Kansas, and there away; and Elias, with a more Eastern, if not a more aromatic reputation, is another. When such men are connected with an enterprise, the "Times" is safe in saying that it is "a swindle of the most impudent character," and that "their mine is in the pockets of the unwary."

MEDICAL MATTERS

seem to go down as the mercury goes up—of course we don't refer to the medical "marcury," but that in the thermometer—and supreme dullness reigns. Every now and then we hear from some one who says that he or she has been acting as an agent for some stuff, is threatened with prosecution for money due, and ask us to send proof that the medicine is a humbug. We do not profess to give legal opinions, but common sense would dictate that such persons should comply with whatever agreements they have made. If they took the stuff and contracted to sell it on certain terms, we doubt if any court would "go behind the returns," as the politicians say, and consider the character of the medicine. We advise all such persons to settle according to the terms of their bargain, and never thereafter engage in the sale of any quack medicine whatever....We have alluded above to the pathetic aspects of our correspondence relating to humbugs; no where are these more frequently exhibited than in those relating to medical humbugs. The harm these do is not solely bodily, but they are the cause of much

MENTAL ANXIETY AND DISAPPOINTMENT,

as the circulars relating to them are filled with assertions so positive, and set forth the special virtues of the stuff in terms so glowing, that the reader, not knowing that the same is done in a hundred or more others, feels that he would do wrong not to heed them. We have before us a letter, which shows in form and manner that the writer is of more than ordinary intelligence. He says: "Consumption has made sad havoc in my family, the last victim being a daughter of 19 years of age, and the end is not yet."—Seeing a medicine attractively advertised, he sent for a circular. The circular came, and he wrote to a number of the persons whose certificates were printed in it, asking about the medicine, and in every case, save one, his letters were returned as uncalled for. This made him suspect the genuineness of the certificates, and he wrote to ask our opinion as, if not his own, the hopes of some members of his family are strongly fixed upon this medicine as a relief from a dreadful disease. One can not dispel such hopes without a deep feeling of sadness, and a keen regret that for the mere sake of making money, any one should be allowed to raise such anticipations in a grief stricken family. It is hard in such cases to be obliged to say what one thinks, and thus cause great disappointment, but it is better that that should come in this way, than at the end of a long and fruitless trial. The loss of money is one of the least evils that these quacks cause... Who has not experienced the joy of meeting a long absent friend! Who has not felt the keen pleasure of a return after a prolonged absence from home, these make the heart leap, but for a real thrill of pleasure, that shall make the blood course rapidly, and tingle every vein, artery and nerve, from the top of the scalp to the largest toe, he should see his nation's flag in a foreign land! A combined sensation—long lost friend, long deserted home, and the American flag, all rolled into one, comes upon us as we once more gaze upon the long unseen, but by no means forgotten

PORTRAIT OF EDWIN EASTMAN.

There you are Eddie, boy, the auburn locks gracing your marble brow! there are the marks each side of the Apollo-like mouth, where the cruel salvages branded you. Then there is your signature, just as you have written it at our desk, when you hadn't any marks on your face, and hadn't much of a marble brow to speak of, and told us how you and that other fellow got up the story.—But why spoil the narrative by saying that you have no wife? Don't the book say that you were captured with your young wife, and isn't there the picture of "The Medicine Man," which his name it is Wakometkla, who looks as if he had eaten too many cucumbers, but who taught Eddie to make the Bloody Indian Syrup—or Indian Blood Syrup, or something. While keeping the run of the wickedness of the world, as one must who records the humbugs, the work has its compensations, and one of these is to know that Eddie Eastman still lives.

Artificial Coloring for Butter.—We have tried various preparations for coloring butter, including the ordinary annatto, as kept in the drug stores, and several of the liquids put up ready for use by different manufacturers. While customers insist on a high color, it is necessary for dairymen to use artificial coloring, and the butter of some cows is so devoid of tint, that it is unsalable without coloring, although the flavor may be faultless. Some people taste with the eye, and for them appearance must be considered. While artificially colored butter brings 5 or 10 cts. per pound more in the market, than that pure from the cow, coloring matter will be used. Carrot juice is objectionable; most of the preparations of annatto are made with potash, and the unprepared paste is difficult to manage properly, although we have procured the finest tints by its use. We have recently tried a preparation made in oil, by Mrs. Smith, of Arch St., Philadelphia, an experienced dairy manager, which gives an unexceptionable tint, and being free from alkali, will the better please those who object to the alkali preparations. It is well to avoid too high a color, and in practice we have found that one half the quantity recommended to be used by the makers of the preparations, is sufficient. There never was red butter, and an excess of coloring produces this shade. A fine lemon-tint is the proper one, and in using coloring, it is best to err on the side of economy rather than excess.

Profit in Blackberries.—As an instance of the profitable use of one of the small accessories of the farm may be cited the business of gathering wild blackberries in the town of Salem, N. C. From this small town, of about 2000 inhabitants only, over three million pounds of this fruit was shipped last year, bringing into the town about $500,000. To utilize in this profitable manner one of the frequently neglected resources of the fields and woods, might add considerably to the income of thousands of families in various parts of the country where this fruit abounds.

Varieties of Wheat.—"T. K. M.," Mercer Co., W. Va. There are some varieties of wheat that are hardier than others, and better resist the attacks of fungoid diseases, such as rust and smut, and of insects. Amongst the old hardy wheats are the Treadwell and the Tonzelle, and a newer variety, which has been very successful, is the Clawson. The first of these is a light amber wheat which makes an excellent flour; the latter are white wheats. As a rule, we have found the red and amber wheats the hardiest, and the white to be tender.

Ditching Plow.—"W. C.," Lockport, Ill. Ditching plows which cut the channel and throw out the earth upon one side, are the cheapest in the end, as they finish the work. Randolph's ditcher, recently described and illustrated in the *American Agriculturist*, is perhaps the most complete and effective implement of this kind. R. H. Allen & Co., of New York, have a ditching plow which makes a finished ditch. The New York Plow Co., and Ames Plow Co., whose addresses are given in the advertising columns, have cheap plows, which loosen the earth so that it can be thrown out with a shovel.

Management of Slow Breeders.—"C. A. S.," Washington Ter. There is no way of hastening the breeding of cows which are slow in this respect. The best method is to keep them in company with the bull constantly; it is often the case that the period of heat passes without being noticed. This will not happen when the herd is made complete by keeping a bull on the premises. It is best to get rid of slow breeders.

Thumps in Hogs.—"W. B.," Columbus, Ga. For this disease, which is inflammation of the lungs, or of the lining membrane of the cavity of the chest and lungs, nothing an be done but to give good nursing. Keep the patient warm, give drinks of lukewarm gruel and rub a paste of mustard and water upon the brisket and sides of the chest.

Building Cisterns.—"A. R. W.," Salmon Falls, N. H. We have given frequent descriptions and illustrations of cisterns in the *American Agriculturist*, for instance in Nov. 1875, May and October 1874, and August, 1876. Any one of these would answer to keep water for household purposes.

To Make a Pasture of Alfalfa in Colorado.—Las Animas, Col. To get a good stand of alfalfa upon dry soil, the ground should be deeply plowed and subsoiled, as this is a very deep-rooted crop, at such a season as will give the largest supply of moisture. The ground may also be thoroughly irrigated in the fall, and early in spring may be plowed, harrowed and sown in drills 9 inches apart; and then rolled with a corrugated roller so as to make water furrows between the drills. The crop may then be irrigated without danger of baking the ground, or if necessary, the ground may easily be cultivated between the drills. The Thomas Smoothing Harrow would serve a very good purpose, in mellowing irrigated land that has become baked, without injury to the young crop.

Fall-Fallowing.—"P.," Franklin Co., Mass. Fall-fallowing is useful where the soil is full of weeds and is inclined to clay, on light soils it is of no special benefit, except to clean the land, and as a timely preparation for spring work. Fall plowing may be done for oats and early potatoes with benefit, if the furrows are left high and rough.

All About Irrigation.—"W. A. C.," Wilmington, Del. The methods and effects of irrigation are fully described and explained in Stewart's "Irrigation for the Farm, Garden, and Orchard," published by the Orange Judd Co., price $1.50.

To Cook Egg Plant.—Every summer there are inquiries about cooking this vegetable, which appears to be new to many. Slice the fruit crosswise, about half an inch thick, peel and stack up with a sprinkling of salt between the slices, put a plate with a weight (a flat-iron will answer) on top, or lay the slices in strong salt and water. The object in either case is to remove a slight bitterness. At the end of two hours, dry the slices on a cloth, and dip in a thin batter of egg and flour, and fry to a light brown. Instead of the batter, dip first in beaten egg and then in cracker powder. Serve hot.

Fried Cucumbers.—Cucumbers that have grown too large to use in the ordinary way, even when they begin to turn yellow, may be sliced, and treated in the same way as egg-plant, but it is not necessary to salt them first. Many are very fond of them cooked in this manner.

Green Corn Pudding.—Grate the corn from four good-sized ears; add one pint of milk, two well beaten eggs, and a piece of butter the size of an egg, salt and pepper to taste. Stir 3 tablespoonfuls of flour in a little cold water, add it to the rest, beat all well together, and bake an hour.

Pleurisy in Pigs.—"L. B. M.," Elmwood, Ill. Pleurisy is distinguished most conspicuously by a labored breathing, with excessive action of the muscles of the abdomen—otherwise heaving of the flanks—a loss of appetite, unsteady gait, and frequent lying down and rising. It may often be relieved by careful nursing, shaving the hair from the chest, and rubbing mustard plaster, or a large linseed poultice over it; and if medicine is given, it should be first one ounce of castor oil, followed by half an ounce of sweet spirits of niter, daily, until a change occurs. A tablespoonful of powdered gentian may be given alternately with the niter. The food should be thin oatmeal gruel, given cold.

Value of Muck.—"C. W. P.," Bernardstown, Mass. Muck is of much more value than sand as an absorbent in stables, in proportion to the amount of vegetable matter contained in it, which adds to its value as a fertilizer. Manure, made by using muck as an absorbent, may be harrowed into the surface, which is the best manner of using it.

Oleo-Margarine.—"G. B.," Broome Co., N. Y. A constant reader of the *American Agriculturist* should not have missed our very frequent notices for some years past regarding oleo-margarine. The *American Agriculturist* was the first journal to call attention to the manufacture, as an objectionable and injurious competitor with dairy products, and in spite of much adverse criticism, has continued to oppose its sale as butter, or as cream in cheese. Many respectable agricultural journals have aided us in this steady opposition, and it is due to these efforts that an act of the Legislature of New York was passed, to forbid the sale of the article as a dairy product in the State of New York. The process of manufacture has been so frequently described, that we can not now repeat it.

Beardless Barley.—"W. J. T.," Dade Co., Mo. We have had no experience with the beardless barley. Like the hulless oats, we consider it a variety that is not worth cultivation. The six-rowed barley is considered the most profitable for sale, and the two-rowed for use as feed. Barley is too much neglected as a feeding crop, considering its value, and its ease of cultivation.

Basket Items continued on page 313.

Lost in One Year $20,000,000, by the Farmers of the United States.

Statistics show that the losses of swine of all sizes amounted in only 12 months to 4,000,000 animals, which, at a moderate estimate, were worth $20,000,000. This money was not lost through any fall in values, but an actual destruction of property. The loss fell solely upon that portion of the community, which, as a general thing, are less able than any others to bear it—the farmers. The most unsatisfactory feature about it is, that it is a loss that might have been, in a great measure, avoided, had the farmers been well informed as to its nature and means of prevention. The death of these millions of swine is ascribed to "Hog Cholera," a term given to diseases, or various manifestations of one disease, which, however the symptoms may differ, all agree in being rapidly fatal. In Coburn's "Swine Husbandry," now just published, will be found the most complete account of "Hog Cholera," any where obtainable; this includes the investigations of able veterinary surgeons, and the experience and views of distinguished breeders. The disease is of more frequent occurrence in the valley of the Mississippi than elsewhere, probably for the reason that there are more swine there. While the disease runs its course very rapidly, and is not readily curable, all agree in regarding it as preventible, as it is due to causes which may be avoided. What is known as "Hog Cholera" is attributed, and with good reason, to two chief causes: improper feeding and want of care. The life of the hog consists of two periods: the growing and the fattening stages. While it is admitted on all hands that there is no grain so valuable, in this country for fattening, as Indian Corn, and that this crop can not be so profitably disposed of in any other form as in that of pork, it is not well calculated for building up the frame upon which to lay the flesh and fat, as other foods, and the chief predisposing cause of disease is the constant and unvaried feeding with corn from the time the pigs are weaned, all through their period of growth. The food is not favorable to a healthy growth, and one of the important steps in the prevention of "Hog Cholera" is to give the animals a variety of food, while making their growth, especially pasture and green food in other forms, with other grains, artichokes, and other less concentrated food than corn. Feeding in this manner produces a more healthy and vigorous animal, and one better able to resist disease than one fed exclusively on corn, which both practice and science teach to be inadequate to supply all the wants of the growing animal. The second cause of disease is crowding and want of a proper sanitary condition of the herd. We have not space here to enumerate all the conditions that should be, and can be avoided; improper sleeping and feeding arrangements, impure water, and filth generally, may be regarded as the chief of these. There is but little wonder that animals improperly fed from the start and exposed to every predisposing condition that the ingenuity of carelessness can contrive, should be subject to epidemics of the most fatal character. The disease, having been prepared for through many months, when it comes is so rapid in its course, and so fatal in its results, that very little help can be hoped from remedies. Mr. Coburn's "Swine Husbandry" discusses these points in full, and shows plainly that these losses to farmers, which sum up in such a fearful aggregate, are due to diseases which may be avoided by proper and inexpensive care, and were it only for the teaching of this important point, and showing how it may be reached, the book would be of great value. We are convinced that were this work in the hands of farmers generally, and they would heed its teachings, the number of millions of dollars would be speedily reduced, and that "Hog Cholera" would soon cease to be the frightful scourge that it now is.

Catalogues Received.

IMPLEMENTS, FERTILIZERS, ETC.

A. B. FARQUHAR, York, Pa., Pennsylvania Agricultural Works, issues a finely illustrated and comprehensive catalogue, including everything in the shape of a tool, utensil, or implement, needed on a farm.

A. J. NELIS & Co., Pittsburg, Pa., wrought iron fences and gates, in addition to their well known horse hay fork, grapple, and other useful matters, make a specialty of ornamental wrought iron and steel gates and fences, of a variety of plain and finished patterns, costing actually less than some wooden ones.

ALEX. SPEER & SONS, Pittsburg, Pa. Plows and harrows of various kinds.

BLAKE, BEEBE & Co., Racine, Wis., makers of the Champion Fanning Mill, claim to have the largest manufactory of these machines in the world. This mill cleans all kinds of grains, seeds, and castor beans, and is therefore found widely useful.

SPEAKMAN, MILES & Co., Westchester, Chester Co., Pa., manufacturers of Embree's Rotary Butter-worker, and folding butter molds with press for making and printing square cakes. Also a revolving duster for sprinkling Paris Green upon potatoes.

EDWIN BAYLISS, Massillon, Ohio. The Massillon harvester, Riding-wheelbarrow.

CURTIS GODDARD, Alliance Ohio; the little speedy corn sheller which weighs only 8 pounds, and is said to shell 10 bushels of ears per hour.

MOHAWK AND HUDSON MANUFACTURING Co., Waterford, N. Y., makers of the Dodge Excelsior Hay and Cotton Press with which 10 tons of hay can be made to go into an ordinary grain car.

JAMES LEFFEL & Co., Springfield, O., makers of James Leffel's Double Turbine Water Wheel, issue a large catalogue of over 100 pages, abundantly illustrated, and containing much interesting matter relating to the use of water as a motive power.

LIVE STOCK—POULTRY, ETC.

BENSON & BURPEE, 223 Church st., Philadelphia, issue a finely illustrated catalogue of all kinds of live stock, cattle, sheep, pigs, and poultry.

J. C. LONG, Jr., 39 Ninth st., Philadelphia. Catalogue and price list of pure-bred fowls and pigeons.

W. H. CUMMINGS, Milldale, Conn. Pure-bred Plymouth Rocks.

THE DAIRY.

THE VERMONT FARM MACHINE Co., Bellows Falls, Vt., issue a treatise upon the manufacture of "gilt-edged" butter, which is descriptive of a system of deep can setting in coolers, by which the cream is kept sweet and raised very quickly.

MRS. B. SMITH, 327 Arch st., Philadelphia, a little pamphlet descriptive of her butter coloring, which is prepared with oil, and also containing many useful dairy recipes.

Bee Notes for August.

BY L. C. ROOT, MOHAWK, N. Y.

One of the principal interests of the present month is the care of surplus honey. It should be kept in a cool dry place. Box honey should be examined occasionally, and if moth-worms are found, they should be picked off and destroyed. Extracted honey may be stored in tin or wooden vats, or casks; if wood is used, it should be first coated with wax. Hives that have cast swarms should be examined to ascertain if they have laying queens, as the young queen will at times be lost when the hive contains no brood from which the bees may rear another. If a hive should be found without a queen, one should be supplied, or brood be given them, from which they may rear a queen. A hive that has been queenless will often contain so much honey that the queen will find but little empty comb for brood rearing. In this case the honey should be removed with the extractor. Hives that are

not queenless may often be benefited by removing the honey from the center combs, which will allow a much larger number of young bees to be reared.

Questions and Answers.

Excess of Drones.—"I have a great many drones in some of my hives—how can I get rid of them?"—An excess of drones should be prevented by removing nearly all drone comb, thereby preventing their hatching. They may be separated and destroyed by shaking or driving the bees into an empty hive or box, of the same size as the hive containing the bees. Place on the box a piece of wire-cloth, which is just coarse enough to allow the queen and workers to pass through, or a board may be used in which a hole is cut, and over the hole nail narrow strips of tin at proper distances apart. Set the hive over the box, when the queen and bees will pass up, leaving the drones, which are too large to pass through the opening, in the box below; the hive may then be removed to its place, and the drones destroyed. It would be preferable to find the queen and place her in the hive above, as the bees would the more readily pass up.

Natural or Artificial Swarming.—"Do you prefer natural or artificial swarming?"—I very much prefer artificial swarming, which is done by driving, or shaking the queen and a part of the bees into a new hive, placing it where the old hive stood, and removing the old one to a new position.

Driving to a New Hive.—"I desire to drive my bees from my old box hive to a new and more modern one?"—The time to change bees from box hives to those with movable combs is in May, yet it may be done at this season. For directions for transferring, see Notes for May, 1876. The hives referred to by D. H. should be transferred to the frames as shown in Notes referred to.

Frames for Extracting.—"Can the honey be extracted as readily from the standing Quinby frame as from the hanging frame?"—Yes, I think better, as it is a stronger frame.

Questions on Hive Constructions.—"When 16 frames are in place in the new Quinby hive, do you use panels at the sides?"—No, the frames just fill the hive. ...."Are the panels to be cleated when only ⅞ inch thick, to prevent warping?—Yes, put a cleat at each end...."How wide should the hoop iron be that the frame hooks on in the rear and rests on in front?"—1¼ inch wide ..."Should the outside case be cleated?"—Yes, a cleat two inches from each end of the sides and ends..."Is there any way to contract the entrance?"—A block may be used, or it may be partly filled with paper...."Should dowels be used to hold the case in place on the bottom board?"—Yes, one in the center of each end.

A correspondent from N. C. writes of the condition of bee-keeping in his State, to whom I would reply: You first need a hive with movable frames, to which your bees may be transferred, or new swarms may be hived in them. You can then take your surplus in a desirable shape, in small boxes, or with the extractor. The questions in regard to queens and queen rearing, will be most fully and accurately answered by republishing one of the most able papers ever prepared by the late M. Quinby upon this subject. With the consent of the Editor, it shall appear some time before next season's operations commence.

Paraffin and Seeds.—The English papers contain accounts of soaking peas and other seeds in paraffin, to prevent their destruction by insects and birds. One correspondent wishes to know if the heat necessary to melt the paraffin will not injure seeds. His question is a very proper one, as paraffin is really a solid, like wax, which could only be used in the melted state, and it would probably have no protecting effect. The trouble rises from an incorrect use of terms. The illuminating oils, that we call kerosene, are in England known as paraffin oils, which have by usage come to be called simply paraffin. If our correspondent wishes to experiment, let him use kerosene, and he will be able to see how far the method of the English gardeners will answer here.

Purslane on the Table.—Every one who has a garden knows the common purslane or "pussley" as a persistent and troublesome weed, but we have met with very few who knew that it had its uses, and that it was capable of making an acceptable vegetable for the table. Indeed, in France, the plant is cultivated for the table, but we, unfortunately, do not need to take that trouble. Those who wish to try it should select vigorous plants that have grown quickly in rich soil, and use the leaves and tender stems, rejecting the tough portions of the stems near the root. Boiled, and dressed with butter, in the same manner as spinach, it is no mean substitute for that vegetable, and can be had in the hot months, when that can not.

Fruit in England.—The weather of spring was very disastrous to all out door fruits except apples, which it was supposed had escaped; we see by recent papers that the apples, from some unexplained cause, are falling to such an extent, that it is feared that these will also be a very short crop.

The Peach Crop.—Randolph Peters, Esq., of Willmington, Del., who keeps a very close watch of the peach-growing districts of Delaware and Maryland, informs us, (June 29th), that the estimates made earlier in the season, are not likely to be borne out. Lately the fruit has fallen to such an extent, that it is now thought that the quantity sent to market will not be greater than that in 1875.

Ogden Farm Papers.—No. 90.

BY GEORGE E. WARING, JR.

I have the following from St. Paul, Neb.: "I see by a late article that you have had experience in pumping large volumes of water by wind-mill. We in this region (Central Nebraska) are greatly interested in methods for raising water for irrigation. The most of the streams and valley lands are not well located to irrigate by ditching, and, in fact, it would be hard to get enough of the inhabitants to pull together to accomplish it, so that the only course left seems to be for each one to raise his own irrigation water. This country is primarily a stock region, but a certain amount of grain must be raised even to raise cattle successfully. I have ventured to write you to ask, if you can not and will not write and illustrate in the *American Agriculturist* an article, or series of articles, explaining in detail the methods of raising large volumes of water by wind power—*i. e.*, sufficient quantities to irrigate from 10 to 40 acres. It would interest the people of a very wide scope of country west of the Missouri. We have very excellent wind-mills built in the West, but they are all so very expensive, (*i. e.* those which develop any power,) that they are mostly beyond the means of the people of this country. What is wanted is a wind-mill device of simple construction, that can be built on the farm at small expense, and that will raise a volume of water from 8 to 12 inches diameter, to a hight of from 15 to 30 or 40 feet, with a velocity of say 200 feet per minute. Information on the best and most desirable form of pump would of course be of interest. There was an Archimedean screw pump advertised some years ago. Has it proven a success?"

Of course, I am interested in all such questions as the above, and give them the fullest possible attention. The service that it is proposed to perform is by no means a light one. Taking the lowest estimate: a pipe 8 inches in diameter, rising to a hight of 15 feet, discharging water at the rate of 200 feet per minute, we have a duty requiring two (2) nominal horse-power. Or taking the extreme case: a 12-inch pipe, rising 40 feet, and delivering at the same velocity, we have a duty of twelve (12) nominal horse-power. In both of these calculations there is no allowance made for friction, which is more or less important, according to the size of the water-way of the pump used. Practically, even with the large pump, it would not be safe to depend on less than two-and-a-half (2½) horse-power for the smaller service, or fifteen (15) horse-power for the larger.

To raise such a large volume of water by wind power, as the larger instance calls for, about 160 cubic feet per minute, against a head of 40 feet, would be a severe tax upon an ordinary wind-mill, and for what requires a very large and costly mill, it would certainly be better to use a fifteen (15) horse-power steam-engine. The smaller amount, about sixty-five (65) cubic feet per minute, might be raised by a Fijnje pump, by an 18-foot wind-mill, working in a breeze of not less than 15 miles an hour. Such a mill would cost $250, aside from the cost of the tower and pump. It is doubtful, whether a wind-mill to perform this service accurately and well could be build for much less on the farm, where it is to be used, and a home-made mill would hardly be self-regulating, so that it would require an amount of attention, that would cost more than the interest on the purchase. If, however, it is thought best to make a wind-mill at home, and save the cash outlay, I should then recommend the form used by the millers on this Island, who grind corn by wind power. This is the familiar, old-fashioned, four-armed mill. The arms would have to be at least 12 feet long, and they should be provided with lattice-work, bearing canvass sails, 2½ feet wide. It would be practicable to make a mill of this size, with a vane to turn it toward the wind, but anything larger than that would have to be turned by hand. In any case, the sails would have to be furled and unfurled by hand.

The pumping mills, so largely used in Holland, where they raise the water by paddle-wheels, have only about a four-foot lift. Each mill, with its pump, costs about $10,000, and requires the supervision of an attendant, who lives in the mill-house. If the Archimedean screw is used, the lift may be doubled, but the amount of water discharged is proportionately less. A steam pump, to perform the service required in the larger instance given above, would consume about four pounds of coal per horse-power per hour. Rather than use a wind-mill or steam-engine, it would be better, if practicable, to go to the expense of making a long canal, tapping the stream at a higher level, and delivering the water by gravitation.

As to pumps, the Archimedean screw is as old as history, and is very efficient for raising water to the hight of 8 or 10 feet. For greater hights, it has serious objections. The Fijnje pump is very simple, and has a very large water-way, so that less allowance need be made for friction, and for disturbance of the current, than in the case of any other, but for working under a head of 40 feet, it would require special provision for strength, and would consequently be somewhat expensive.

The fact is, that to raise a sufficient amount of water for the irrigation of any considerable tract is hard work, which requires substantial appliances, and ample power. That it would be profitable under the circumstances named, I have no doubt, but that it can be easily and cheaply done by any home-made contrivance, is doubtful, and unless the appliances are adequate to the conditions it had better be left undone.

The best service that I can render on this subject is to call attention to the very excellent work on Irrigation, recently written by Mr. Henry Stewart, an associate editor of the *American Agriculturist*, and published by the Orange Judd Company. It is the first American work on the subject, and a remarkably good one. Certainly, any man who contemplates the adoption of irrigation, should read the book as his first step. It contains arguments in favor of the process, which should be more than ample, and which ought to lead to the introduction of irrigation works all over the country. At the same time, it holds out no delusive hopes, and does not pretend that the great benefits offered, are to be got for nothing. Except in the matter of mechanics, it gives all that can be desired. It does not mention the Fijnje pump, (which was introduced to our notice only last year at the Centennial,) and it is much less specific, than it might be, on the subject of wind-mills—a subject which is attracting more attention, as the value of wind power for farm work is becoming better known.

Beyond the size of 18 feet in diameter, the wind-mills are only made with cog-wheel gearing for driving machinery, but doubtless a pumping mill could be made 24 feet in diameter, (having 6 horse-power in a 25-mile breeze,) at a cost of about $400. My preference would be for two 16-foot mills, costing $200 each, and working separate pumps. The cost of the pumps for the smaller size mills would be proportionately considerably less than for the larger one.

I became a practitioner and an advocate of the

deep-can system of setting milk, during the first years of its adoption in this country. I got my first suggestion concerning it from a description in a German paper, of the practice of a Swedish dairyman, and immediately experimented with it. The trial proving satisfactory, I remodelled the dairy at Ogden Farm to suit the case, and have practised it ever since. I have never seen occasion to change my original opinion, that by this system we get all the butter the milk is capable of making; that there is very much less interference by the changing conditions of the atmosphere, than with the shallow-pan system; and that the amount of labor needed is very much less. I have had the satisfaction of seeing those who argued against it, become its advocates, and finally, to see the method adopted by inventors as the basis for patented processes. The Hardin and Cooley systems have come quite generally into favor. Dr. Ezra Michener, who in his early experiments found the cans greatly inferior to the pans, has since concluded that he did not skim his cans deep enough. In a recent number of the "Country Gentleman" he publishes the result of a comparative test between cans in a Hardin ice-box, and pans in a cool cellar. He found 21.50 pounds of milk yielded a pound of butter in the cans, and 21.93 pounds made the same amount in the pans, "the butter made was all good, but that from the cans had a peculiar rich flavor, which I have never found by the shallow-pan system."—Indeed, his communication may be taken as strongly in favor of the deep cans.

The Cooley system strikes me as being a very good one. The cans are filled nearly full with milk, covered with an inverted pan, and placed in a water-tight box, the covers being fastened down by weights or slats bearing upon them. The box or vat is then filled with water, so as to immerse the whole concern, covers and all, the inverted pans keeping out the water on the principle of the diving-bell. If desired, ice may be put into the water, and the whole concern is covered, to prevent the atmospheric warming, and the consequent waste of ice. There is no exposure to the air, to dust, and to flies. Ice enough is used to keep the temperature below 50°, until all the cream has risen—which takes place in less than 12 hours, so that one set of cans is all that is needed, when the cows are milked twice a day. The cans being nearly always submerged in cold water, and kept away from the air, they need washing only once a week. Mr. Albert Chapman, of Vermont, reports experiments with this system (Cooley's), where he took a can, at random, in which the milk stood 17½ inches deep, fully 4 inches being cream.

Two cans of skimmed milk, set for 48 hours, failed to throw up any appreciable cream. His trial was made in June, when the cows (about half-blood Jerseys) were giving their best flow. He made one pound of butter to 22.50 pounds of milk—certainly a very good result.

I have not determined to adopt the Cooley system, and, indeed, I find the simple deep cans, floating in cool water, so satisfactory, that I may not change. At the same time, were I about to start a new dairy, I should certainly arrange for the covering and total immersion of the cans under the Cooley patent, feeling sure the result would be as good as that now obtained, and that the freedom from exposure to the air is a decided advantage.

We have as yet no complete result to report concerning Prickly Comfrey. The sets planted last autumn were probably covered too deeply, and were very late in coming up—some of them are only beginning to show now, and others are probably rotten. Sprouted sets, planted this spring, are much more forward, and those which came the earliest, show a vigorous growth, which promises excellent results later in the season. The leaves are greedily eaten by horses, cattle, and swine, and there is thus far every indication that the statements of those, who have recommended the new plant, are sufficiently reliable, to warrant all who need green forage during the dry weather of summer—and who does not?—in setting out an experimental patch in September or October, so as to procure a good start before winter sets in.

Science Applied to Farming.—XXXII.

More About Seeds.—German Methods of Testing their Purity and Vitality.—Field Experiments with Fertilizers.

In the last article reference was made to the importance of investigations of seeds, as illustrated by examinations of those sold in England and on the Continent of Europe. As there stated, most remarkable results have come from the investigations of Dr. Nobbe, of the Experiment and Seed-Control Station at Tharand, in Saxony, whose example is being followed in a large number of Stations in Germany and other European countries. The importance of the subject will, I feel sure, warrant a brief outline of the methods recommended by Dr. Nobbe, and pursued at the laboratory here, especially as no description of them has, so far as I know, ever been given in English, except in the last report of the Connecticut Experiment Station, from which the following is condensed.

The sample of the seed to be examined is taken from the barrel or bag, with instruments made for the purpose or in such other way as to secure a perfect average sample. This, when brought to the laboratory, is thoroughly mixed and a small part of it withdrawn with very special precautions to ensure its representing the average quality of the whole. This portion, from 2 to 15 grammes, ($^1/_{18}$ to $1^3/_4$ ounces,) according to the kind of seed, is next carefully weighed, and then picked over by the examiner, seed by seed, with the aid of magnifying glasses and other instruments designed for the purpose. Each seed passes under the eye, the genuine seeds, those corresponding with the label under which they were sold, are put by themselves in one place, and the foreign matters, whether seeds, chaff, dust or sand, in another. The pure seeds are weighed by themselves, and the impurities also.

In this way we learn the percentage of pure seed. For instance, suppose we take four grammes of seed, and find after picking it over, one gramme of impurities, and three grammes of pure seed. We make then the proportions, 4 : 3 : : 100 : 75, *i. e.*, our sample contains 75 per cent of pure seed, and 25 per cent of impurities. The foreign seeds are examined botanically, to see if there are among them any which would produce parasitic plants or weeds poisonous to cattle. If there are, such an article should be at once rejected by the farmer. The germinating power of the pure seeds is next ascertained, as follows: Two lots of two hundred seeds each are carefully counted out, and, after being weighed, are allowed to soak in distilled water twenty-four hours. They are then transferred, the one lot to an apparatus of porous earthen ware, the other to a wrapper of bibulous paper.

The figure herewith represents Dr. Nobbe's ap-

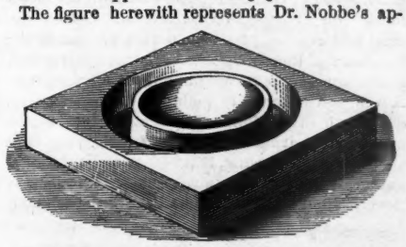


Fig. 1.—DR. NOBBE'S SPROUTING APPARATUS.

paratus for testing the sprouting power of seeds. It is made of burnt clay or earthenware, and consists of two parts, the base and cover. The base is about 8 inches square, and has in the middle a circular depression, about 4 inches wide and ¾ inch deep, which serves as a receptacle for the seeds. Around this "germinating bed," as it is called, runs a canal, a little over an inch deep, for water, which soaks through the porous material, and keeps the seeds moist. The base is glazed on the bottom, and part way up the sides, to prevent the water running through and wetting the support on which the apparatus rests. The cover is of the same material as the base, and fits over it like an ordinary paper-box cover. In order to allow circulation of air through the apparatus, the cover is somewhat wider than the base, and each interior corner is provided with a projection. It is thus prevented from closing down tight upon the base, and room is left on all sides for free movement of the air. A small aperture is left in the top of the

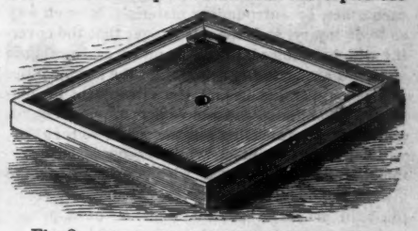


Fig. 2.—COVER FOR SPROUTING APPARATUS.

cover, in which a thermometer may be inserted, if desired, for determining the temperature.

Suppose now that the seeds have been counted out, as above mentioned, in two lots of two hundred each, soaked, and one lot put into the moistened paper. The other lot are laid in the germinating bed of the apparatus, which is kept moist by the water in the surrounding canal, the cover is put on, and the whole set in a convenient place, where the temperature is fit for the germination of the seeds. From time to time the cover is taken off, the seeds are examined, and those which have germinated are removed. The date of each counting, and the number which had germinated, are entered in a book kept for the purpose. At the expiration of ten days or two weeks, in most cases, the trial is concluded. The number which have sprouted, all told, is found, and to it is added one-third of the number which have remained sound during the experiment, and yet show no disposition to sprout. The number is divided by two, and the quotient taken as the number of seeds in one hundred, *i. e.* the per cent which will sprout. The object in making two sprouting trials, one with the apparatus, and one with the paper, is to provide a check on any possible mistake, which might pass unnoticed in a single experiment.

As was said, these four hundred seeds were weighed previous to the sprouting trial. From this we calculate the weight of one thousand kernels. This is not an unimportant item in judging of the good quality of the seed. Heavier seed, other things being equal, is to be preferred to light seed.

From the percentage of pure seed in the sample, and the percentage of pure seed capable of germination, we calculate the "agricultural value," which expresses the percentage, or proportion by weight of the sample, which may be expected to furnish plants of the kind indicated by the label.

The report returned to the persons sending in the sample, will run as is illustrated by the following example:

The following is the result of examination of *Trifolium pratense*—RED CLOVER, received March 21, 1877, from John Smith, Middletown, Conn.

Pure seed	94.3 per cent.
Impurities*	5.7 per cent.
Pure seed capable of sprouting	89 per cent.
Agricultural value	83.9 per cent.
One thousand seeds weigh	1.59 grammes.

The seed is accordingly of good quality.

As was said last month, the tests made at our laboratory, indicate a remarkably favorable condition of the seeds sold in our markets, as to purity and vitality. But our examinations have not been extensive enough to enable us to judge accurately of the general state of the seed market, and where there is so much of opportunity for both innocent and willful wrong doing, a check must always be valuable. The interest is of too vast importance to the agriculture of the country, to be neglected.

I wish to add a word about the germinating apparatus above described, and particularly to invite the careful attention of sellers and users of seeds to its merits. All of the methods commonly employed for testing the sprouting power of seeds, are open to more or less objection in one way or another. When sand or earth is used, aside from the danger of presence of foreign seeds, and of improper covering, it is difficult to maintain a uniform

* Consisting of chaff, broken seeds, and a little Swedish clover—*T. hybridum*.

and fit degree of moisture, while the process of germination cannot be watched without disturbing the seed. When paper or cloth is used, the seeds are liable to be disturbed, or come in contact with each other, or surrounding materials, in such way as to do injury, and there is danger that the covering will be allowed to get so moist as to exclude access of air, or so dry as to injure the germination. Nobbe's apparatus has all the advantages of simplicity, cleanliness, and convenience, offers abundant room for spreading out the seeds, so that they will not come in contact, while those that have germinated may be removed without disturbing the others, provides for the entire exclusion of light, plentiful access of air, maintenance of a proper temperature, uniform and fit degree of moisture, and allows the seeds to be examined at any moment and the whole process of germination to be followed with the utmost convenience, and with no danger of injury, whatever.

I have just been out to look at a corn field on which the proprietor is carrying out a series of experiments, on the plan suggested in some of these articles last spring. So far as we could judge, the plots to which nitrogen, phosphoric acid, and potash were applied singly, are doing but little better than where no manure was added. On the one where nitrogen and phosphoric acid were applied together, in the form of a high-grade nitrogenous ("ammoniated") superphosphate, the corn looked very little better. But where the nitrogen, phosphoric acid, and potash were all used together as a "complete" fertilizer, the growth seems to be equal to that where a heavy dressing of stable manure was applied. But the appearance now, and the baskets and scales at harvest time, may tell two different stories.

A gentleman who has been making a somewhat similar experiment on grass land in Virginia, reports that phosphoric acid, in the forms of bone-black, superphosphate, and fine ground bone, has given most excellent results, while potash and nitrogen in other fertilizers, seemed to be of but little use. I am very much obliged for these reports, and am looking forward with a good deal of interest to the full accounts from a large number of these field experiments when they are completed. Let me once more ask the gentlemen who are conducting them, to make their reports full and accurate as possible. I shall be happy to send more blanks for the reports, if desired. I feel sure that when the accounts are collected and compared, we shall be able to derive some facts and conclusions from them which will be valuable.

W. O. ATWATER,
Wesleyan University, Middletown, Conn.

A House Costing $3,200.

BY S. B. REED, ARCHITECT, CORONA, LONG ISLAND, N. Y.

These plans were designed for a summer residence near Toms River, N. J. They are especially adapted to situations where the more pleasant views are to the rear, making it desirable to have the principal rooms on that side of the house.... **Exterior,** (fig. 1.)—The Swiss-like style is due to its bold roofs, wide projections, and rustic details of finish, there being no attempt at architectural display.... **First Story,** (fig. 2.)—The Hall, which is unusually large, is entered from the front porch through double doors, contains the main stairs, and communicates with the library, parlor, dining-room, and a passage leading to the kitchen. A Closet is finished under the stairs opening from the passage. The Library is nearly square, with openings in the center of each of its 4 sides, and is divided from the parlor by large folding doors. The Parlor is of good dimensions, has large windows opening to the floor, and leading to the piazza. The Piazza is 12 feet wide, affording shade and ample protection from storms, and may be used in pleasant weather to enlarge the capacity of the parlor. The Dining-room is entered from the main hall, and communicates through the pantry with the kitchen. The Kitchen has windows front and rear, giving a good circulation of air, and is furnished with a range, boiler, sink, and pump, connected with the necessary piping, with supply from the cistern. Private stairways lead to the second story, and to the cellar; the necessary pantries are provided. The one-story Addition is divided into three parts, making a work-room or shed, inclosing the well; a servant's bed-room, and a store-pantry.... **Second Story,** (fig. 3.)—This story contains a hall, 5 good-sized chambers, 7 closets, and a bath-room. The Hall has 9 doors leading to the several apartments, 2 stair landings, and a window, while it occupies but little space. The Bath-room has a bath-tub, seat-closet, and pipes for cold and hot water.... **Attic,** (fig. 4.)—A Hall and 2 Chambers are finished in this story. The stairs leading to it are inclosed, and have a door at the foot. The hall is lighted by a dormer window in one end. At the opposite end a door leads to the space under the wing-roof, where the tank is placed, immediately above the bath-room.... **Construction.**—The hight of the cellar is 6½ feet, of the first story 10½ feet, of the second story 8 ft., of the attic 7 feet. The Foundations are of brick-work, and show 2 feet above the final grades. The Chimnies are of brick-work, and have 6 open fire-places, with hearths to each, adapted to the use of either wood or coal fuel. The Plastering is "hard-finish," on 3 coats of brown mortar. Stucco cornices and centers, of simple design, are put in the first story of the main house. Marble Shelves with stucco truss-supports are put above each fire-place. A well and cistern are included in the estimate. The depth of the former is put at 30 feet, as the average. To avoid the danger of the caving in of the sides while digging, it is best to make the excavation 4½ feet *square*, (not circular as is usually done.) Rough planks, 4½ feet long, with their ends notched half way across, are slid in to lock with each other closely against the banks, as the excavation proceeds, making this part of the work perfectly safe in any kind of earth. The depth of the well should be sufficient to secure at least 4 feet of spring water. Of course it would be impracticable to lay the brick-work under water that depth, and therefore a circular curb 3 feet 3 inches in diameter, and 6 feet long (inside measure) must be made of ordinary boards, with an interior 4-inch timber rim at the bottom, and let down into the well as soon as water is reached. The *rim* forms the foundation of the brick-work. After laying a few courses around, say to the hight of one or two feet, their added weight will force them, (curb and all) downwards under the water as fast as the depth is increased. The clear inside diameter, when finished, is 2 feet 10 inches; the top courses of brick, to the depth of 3 feet, should be laid in cement mortar—all others laid "dry." The Cistern is constructed entirely of brick and cement mortar, in the earth—7 feet across, and 8 feet deep in the clear. The Frame of the house is of spruce timber, siding of clear pine, beveled clapboards, laid on sheathing felt. Roofing of cedar shingles, laid "three thick" on spruce lath. The Cornices have projections of 2 inches for each foot of their hight from the ground, which is appropriate for buildings of this character, but is double that of the usual styles. These projections are ceiled underneath with tongued and grooved boards, and bracketed with chamfered timber trusses. Openings are made through the gable cornices to allow for the escape of heated air from under the roof. The Flooring is of 9-inch tongued and grooved spruce plank. All windows above the cellar have 14-inch sash, and outside blinds. Doors are paneled and moulded. The inside trimmings are quite plain, single moulded with bold members. The upper framework of the piazza is left exposed on the underside, and is neatly dressed and chamfered. The first story stairs are strongly constructed of pine, with newel, rail, and balusters, of black walnut.

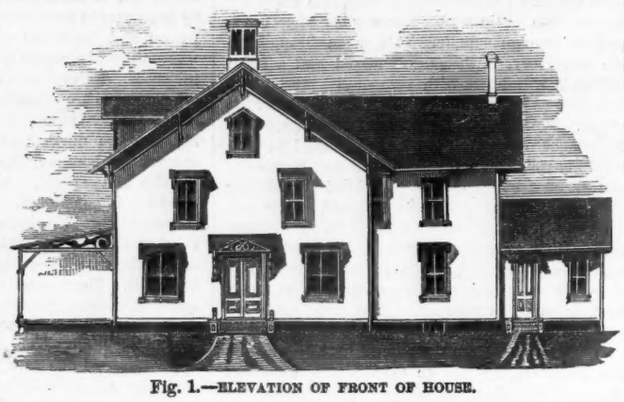


Fig. 1.—ELEVATION OF FRONT OF HOUSE.

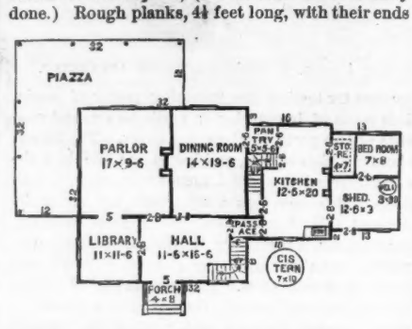


Fig. 2.—PLAN OF FIRST FLOOR.

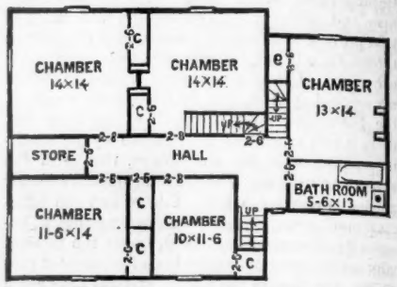


Fig. 3.—PLAN OF SECOND FLOOR.

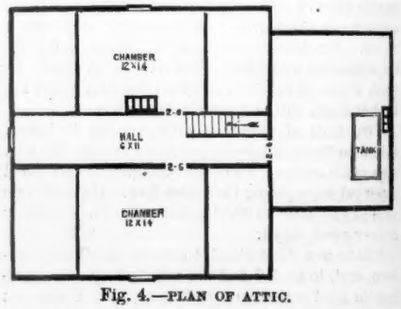


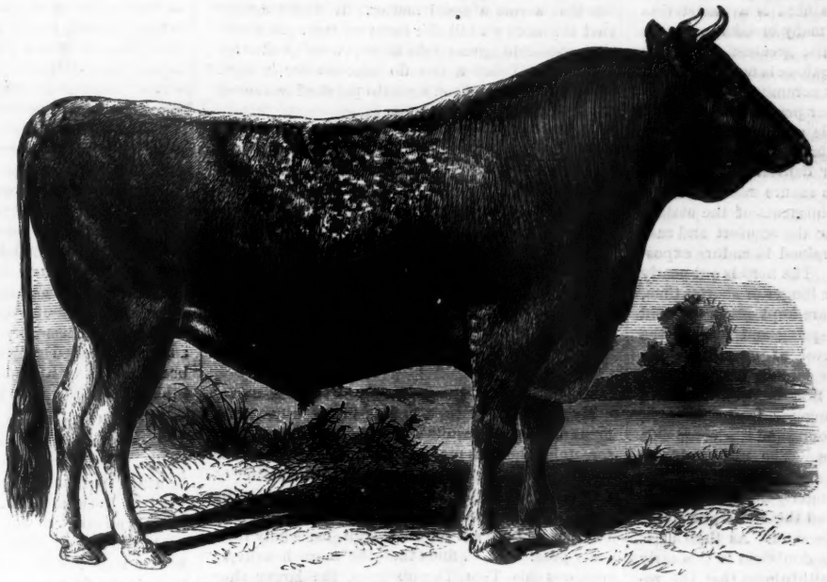
Fig. 4.—PLAN OF ATTIC.

Estimate of materials and labor:

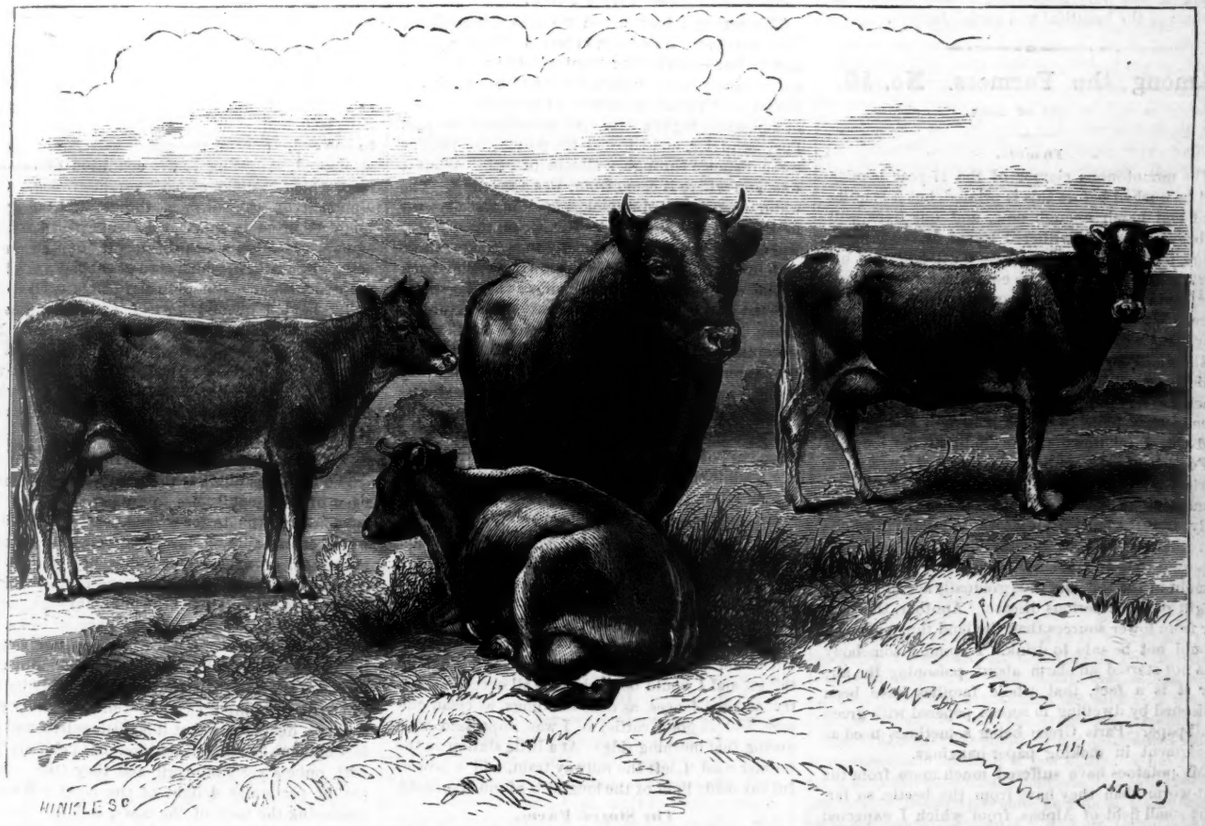
93 yards excavation at 25 cents per yard	$23.25
30 feet digging well, at $1 per foot	30.00
19,000 bricks, (cellar, foundation, chimnies, cistern, and well, furnished and laid, at $12 per M	228.00
4 barrels cement, at $2.50 per barrel	10.00
1200 yards plastering, at 28 cents per yard	336.00
5974 feet of timber, at $16 per M	95.60
1 girt, 4x8 in. 32 feet long.	1 sill, 4x8 in. 318 feet long.
8 posts, 4x7 in. 20 feet long.	1 plate, 4x6 in. 318 feet long.
45 beams, 2x8 in. 12 feet long.	61 beams, 2x8 in. 20 feet long.
30 beams, 2x8 in. 17 feet long.	20 beams, 2x8 in. 13 feet long.
35 beams, 2x8 in. 11 feet long.	2 girts, 4x6 in. 30 feet long.
700 wall strips, at 13 cents each	91.00
500 clapboards, at 14 cents each	70.00
350 shingling lath, at 6c. $21; 9,650 shingles, at 2c. $193	214.00
150 feet gutters, valleys, and leaders, at 10c	15.00
1500 feet dressed lumber in cornices, at 4c	60.00
513 flooring, at 27c. $138.51; 30 windows, at $12, $360	498.51
250 lbs. felt, at 5c., $12.50; 35 doors, at $10, $350	362.50
5 marble shelves, $6, $30; stairs, $100	130.00
Closet finished, $50; well curb, $12	62.00
Range and plumbing, $280; nails, $20	300.00
Carting, average 1 mile, $40; painting, $230	270.00
Carpenter's labor, $300; Incidentals, $104.14	404.14
Total Cost, complete	**$3,200.00**

The Echo Farm Herd of Jerseys.

We are indebted to Fred. R. Starr, of Echo Farm, near Litchfield, Conn., for the portraits of the excellent Jerseys which appear on this page. Mr. Starr's herd was brought prominently to notice through the award of the premium offered by the American Jersey Cattle Club for the best bull, to his bull "Litchfield," which is at the head of his herd. There is no doubt that this distinction was well bestowed upon this animal. The portrait here given is from a photograph, which, while it is a very excellent one, yet cannot do full justice to the animal. The "counterfeit presentment" of a photograph, however accurate it may be, gives only the form; the color, quality, and general character, must be seen to be properly appreciated. The bull "Litchfield," (No. 674, A. J. C. C. R.,) now we believe in his seventh year, is a remarkably massive animal. This is shown to some extent in the engraving by the heavy fore quarters, noble crest, and powerful head, but still better by the front view in the larger engraving. For a Jersey this feature is rare, but it is, to our thinking, of the greatest value as denoting extreme animal vigor and vitality, and great strength of constitution and stamina. A bull so endowed should be expected to stamp his peculiarities with great force and certainty upon his offspring, and this is precisely what is done by "Litchfield," as evinced by the evenness and regularity of the herd which he has helped to form. His son, a remarkably beautiful bull, which is his next neighbor in the stable, is almost a perfect counterpart of himself, in color, form, and quality, and promises, when he has become thoroughly developed, to acquire equal substance. "Litchfield" is a solid silver-gray, beautifully dappled, and darker below than above, where he is rather light. Although apparently a very heavy bull for a Jersey, he is only in moderate working condition, is far from being fat, and is long in body and well-proportioned. He bears all the marks of a productive butter stock; his horns are of a clear bright waxy yellow, and are very fine, and he is furnished with a set of very largely developed teats. The proof, however, is in his progeny, which are excellent milkers and rich butter cows. The herd numbers about 60 animals, and we selected at a recent visit to the farm, which was unfortunately much shorter and more hurried than we should have desired, three cows as specimens whose portraits are here given. To select one cow in preference to another for this purpose, was in this case simply a question of taste, for we have seen no herd so even all through in quality as this, and one cow might just as well have been selected as another. This evenness is so conspicuous a feature of the herd, that it appears at first sight, and is confirmed on closer examination. There is diversity of color, certainly, for there are all the beautiful and picturesque tints which belong to this beautiful breed, and Mr. Starr is no stickler for solid color or black points. Butter is his object, and he breeds for profit from that, and turns all his attention towards breeding cows that are profitable for the dairy. But in all else beside color there is great uniformity. There are no second-rate animals, and if one looks for a fine udder, or well-formed or well-placed teats, or any of the well-known points of first class Jersey cows, he may find them in the first cow seen in the pasture. In such a large herd as this, this is a remarkable characteristic. The cow on the right of the picture is "Bessie Allen," (No. 3,719); that in the center is "Chestnut," (No. 1,888), and that on



JERSEY BULL "LITCHFIELD," THE PROPERTY OF FRED. R. STARR, LITCHFIELD, CONN.



PORTION OF THE ECHO FARM JERSEY HERD, OWNED BY F. R. STARR LITCHFIELD, CONN.

the left is "Pride of the Village," (No. 3,833), a remarkably beautiful heifer, with her first calf. "Pride of the Village" was one of the herd exhibited at the Centennial. She is by "Litchfield," has his fine color, and is a very promising animal.

The management of this herd is a model that might well be adopted by many breeders. In the treatment of the animals the greatest gentleness and quietness are exercised; there is no loud talking in the stables, and the very common but purposeless vice of swearing is never practised here. The animals are tame and docile and are perfectly at their ease. There is profit in this as may easily be discovered on trial in other dairies. The regimen of the herd is calculated to ensure robust health, and although all the appointments of the stables and yards are calculated for the comfort and ease of the cows, yet they are trained to endure exposure to all sorts of weather. The herd is out nearly every day in the winter, for a longer or shorter time, according to the weather; are kept out in the field at night quite early in the spring and late in the fall. The stable is a marvel of cleanliness, the litter is white sand and the sanitary arrangements are excellent. This is the first herd that we have visited in which the arrangements for keeping the calves are such as the young and tender animals ought everywhere to have. The calf stable is furnished with a separate stall for each calf, the stalls are provided with mangers, ties, and gutters, the same as for the cows, and the stalls and stable are littered down with white sand. As the calf is the making of the cow, it is doubtless to this early training in the ways of healthfulness that the robust condition of the cows is due. Mr. Starr is always prepared to entertain visitors between certain hours in the day, and the herd is always to be seen in the field in working condition, none of the animals being ever gotten up for show as samples of what the others are not. To visit the herd would be highly instructive to any dairyman who desires to learn how dairy animals may be bred and managed, and very interesting to any breeder or admirer of the beautiful and useful Jerseys.

Among the Farmers.—No. 19.

BY ONE OF THEM.

Insects.

The monotonous clamor of the 17-year locusts will be hushed before this is printed, but it is quite loud and harsh enough now, and our trees will be brown from the withered leaves of the injured twigs, but the pestilent *Doryphora* will still be at his work. The Potato-beetle comes early and stays late, and may be fought in every stage of its existence. We have to let the Cicadas have their own way, they will not eat, and only the birds can get at them. They have done us one favor, however, which is worth making a note of: not a crow or a blackbird has pulled a spear of corn so far as I have seen. They have been too well fed, I conclude, and this I set down to the credit of the locusts.

Foolish people continue to fear that the use of Paris Green will poison the crops or the soil, or something besides the Potato-beetles. If it would only affect the cut-worms we would rejoice throughout this section—but it will not. One chemist is reported to have said that, being insoluble, it would remain in the soil, and thus gradually accumulating might produce serious disease. Another, that water from lower sources than the land thus poisoned would not be safe to drink. I wonder somebody has not started an alarm about poisoning the air, for it is a fact, that whole families have been poisoned by dwelling in rooms papered with green wall-paper—Paris Green being sometimes used as a pigment in making paper-hangings.

My potatoes have suffered much more from the cut-worm than they have from the beetle, so far. One small field of Alphas, from which I expected great things, has been terribly cut to pieces. The planting was made with single eyes, and they started well, but being cut off as soon as they showed themselves above the ground, perhaps two or three times, I now find that the stalks decay, and the plant succumbs. Those plants which have not been cut off are ready to blossom, while others, and the majority, are just visible above ground.

We can destroy those worms which we happen to find where, and after, they have done the mischief, but that seems a small matter. It would appear that the more we kill the more we may. It is said that sods laid, grass side down, were good traps for them. I find a few do take shelter in such places, but I cannot sod a potato patch of two acres.

A Moth Trap.

I saw in the papers that the moth of the cut-worm might be caught by setting a lantern in a tub of water covered with a film of oil. This I have been trying, and believe it will prove a success. The cut-worm moth, if I know the fellow, is not flying now, but the multitude of flying things which cover the water were a sight worth seeing. Cockchafers, and a dozen different beetles, and moths, great and small, innumerable, and among them perhaps some friends, though I saw none. Still I consider the plan an excellent one, and *the game well worth the candle*, especially in gardens.

High Manuring for Peas.

My neighbor, Clark, a genius in his way, gets a great many good results which the world is no wiser for, unless he tells me, and I "ventilate" them for him. He has been experimenting in the matter of manuring peas. We are generally cautioned in the books against manuring heavily, lest the peas run to vines and we get too little fruit, especially from early peas. Mr. C. finds that the more heavily he manures his Tom Thumb peas, the larger they grow, and the more they produce. This is his favorite early sort, and he has vines 18 inches to 2 ft. long so loaded with peas that it is a pleasure to see them. I have no doubt it is with peas as it is with strawberries and some other things—different varieties will bear different treatment. Some strawberries can hardly be too heavily manured, while others so treated go all to vines and bear nothing.

The City's Filth.

This spring I took a run up into Connecticut. The passage to New London was a pleasure from first to last—a charming evening's sail with pleasant company through East River and the widening Sound, and a good night's rest fill up the measure of a pleasant night's trip. As we steamed out past Fort Schuyler, and entered the Sound, we ran for some distance through a stream of filth. What it was, and where it came from, was a mystery. The water around no "dumping dock" in the city ever looked worse. Some miles further on the mystery was cleared up. One of the city tugs, towing three or four immense "flats" was slowly working back to the city, while workmen, fairly swarming upon the flat-boats, were shoveling off the mixture of ashes, dirt, street sweepings, store and house sweepings, tin cans, and refuse of all sorts, into the water. The tortuous track of this unsavory flotilla could be seen for miles in the clear water by the light still lingering in the west. It seems as if some better use could be made of this material, a large part of which is of more or less value as manure, while the incorruptible portions are certainly useful within the city limits for filling-in purposes.

My course, after reaching New London, lay through parts of New London and Windham counties, and up into Tolland. The apple trees were in blossom, and the corn was up, a good deal of it, though farmers were still plowing and planting. Connecticut hills and valleys never looked fairer, nor the soil mellower, nor the crops better. I admit I am prejudiced in favor of New England things, and I would be glad to see all over the country, as good fences, as neat buildings, as clean culture, and as good cattle, as I was impressed with during that morning ride. At a little station on the Palmer road, I left the railway train, and a powerful bay made light of the long hills of old Mansfield.

The Storrs' Farm.

My errand was to see some of the Short-horn cattle belonging to Mr. Augustus Storrs, and very well pleased was I with the inspection. They are noble, deep-milking cows of the Yarico family, and remind one in style, stature, and udder, as well as pedigree, of the grand old cows of the Connecticut Valley breeders, which have proved their value not less at the pail, and in the hands of "common farmers," than when bred for beef qualities almost exclusively on the rich prairies of the West. At the head of the herd stands the fine bull "Earl of Sharon," 19,701, by "The Doctor," 13,021, out of "1st Rose of Sharon," by "Baron," 5,343, and tracing his pedigree back to imported "Rose of Sharon" by "Belvedere." He is a very superior bull, symmetrical, compact, deep-bodied, and so well formed, that he is hard to criticise. The sight of him paid me for the trip. Mr. Storrs' farm is an old family estate, which has been put in beautiful order by the present owner, and by his brother, of whom it was recently purchased. The house and barns have been repaired or rebuilt, fields have been reclaimed, remodeled, and refined, and a great deal of very judicious, telling work has been done.

It is not the large farm alone which has gained by the liberality of these two brothers. The old burial-ground has been enlarged, walled, laid out anew, and called a "cemetery"; the roads have been planted with shade trees, and the church and other institutions have shared in their beneficence.

Reclaiming a Big Swamp.

One of Mr. Storrs' operations is worthy of special notice. There was a swamp about 100 rods long, in which the muck and peat was of indefinite depth, say two to twenty feet. Through this meandered a lively stream, curving here and there among the reeds and sedges, alders and willows. I have never seen a more tough and tangled mass in my life, even in the Southern swamps. The stream is now carried in a straight channel not less than four feet deep and eight feet wide. A part of the way this is substantially walled in on either side with stone. Into this ditch main drains discharge at intervals, and these not only cut off and bring to the ditch, underground, the water of the springs around the edges of the swamp, but all that flows down from the surrounding hills, while that which falls upon the surface of the swamp itself, is carried away by a system of laterals to the same mains. When I was there, the whole swamp was dry, and much of it had been plowed. It required a team of several yokes of powerful oxen to do the work, and I think many of the furrow-slices, 50 feet in length, might have been hauled off the field by attaching a team to one end. Several systems of culture were being attempted, according to the condition of the surface, which in different parts varied greatly. Over a portion of the surface, the matting of roots might be lifted in sheets, (or blankets), 12 or 14 ft. square, revealing a beautiful, soft, mellow, peaty soil underneath, in which corn or cabbages might be planted without even plowing. This surface was being hauled off and burned, and the ashes returned. It was a plucky undertaking—the whole reclamation—not only the "grand canal," but the miles of tile drains laid—and the result will be well worth watching. I have little doubt that the whole outlay will be returned in two seasons' crops after it is all under cultivation.

Wild Onions Flavoring Milk.

The flavorous onion is the unsavory fly in many a "pot of ointment"—not to say pat of butter. We have been fortunate for several years, and fields in which onions abound have been saved for summer pasturage, or made some other use of, but my neighbor F.—as good a farmer and breeder as he is banker and broker—has been going through "afflictions sore," on account of the onions, or leeks. He gets double the market price for his butter, supplying friends and fastidious people, who enjoy their butter as they do their Sauterne, and study its subtle flavors, rolling it as a sweet morsel under their tongues, demanding that it be little salted, and perfect in odor, flavor, and texture. His fields are blue with onions early in April, and they (the onions) are the particular delight of the cows. We were discussing the taste of the cows, and the flavor of the butter the other day, when he favored an opinion he had somewhere seen advocated, namely, that the flavor was nearly lost after a few hours, thus, that the morning's milk would be quite free from the flavor, if the cows were kept shut up in the

stable or yard all night. It is certain that there are few odors more diffusive than this one we so deprecate in milk. One may perceive it in the cow's breath. Her very hide reeks of it, and the milk shares it impartially with all the other secretions.

One man may make a good part of his breakfast of an onion or shallot salad, or eat a dozen of the bulbs as we do radishes, and yet by noon no one can perceive the flavor in his breath, while that of another person may be redolent for a day or two. I presume it is so with cows. That is, that one animal will throw off the odor much quicker than another. I used to keep bees in Hartford County, and when the onions were in bloom, the *breath* of the hives would be perceived several rods off. It was the very essence of an onion eater's breath. Yet we never perceived any ill-flavor in the honey, and I believe in onion districts the honey that is gathered from that crop, is considered superior to most mixed honey. May we not gather

A Lesson in Domestic Economy from the Bees!

Honey when it is brought to the hive and stored, is in a very liquid condition. In this state the cells can not be properly filled with it, and the bees would not seal up the cells if filled. They regulate the temperature and ventilation of the hive with the greatest accuracy, maintaining a high temperature, and at the same time keeping a current of air in constant circulation all through among the combs. The result is the excess of water is driven off from the newly gathered honey, which is greatly reduced in bulk, and with it goes the last vestige of the onion flavor.

I have known milk to be scalded as soon as drawn, with a view to drive off this odor, but with only partial success. It would be impossible to evaporate the milk at as low a temperature as the bees make use of, but they can not maintain a high one, because it would melt their wax, which is sometimes done in spite of their most energetic wing-fanning for ventilation. We may easily subject milk to a temperature of 150° Fah., or perhaps considerably higher without changing it, and giving it any boiled flavor, and I have no doubt that this would, in the course of an hour or so, effectually dissipate the flavor of the onions. Our old friend, Gail Borden, of condensed-milk and meat-extract fame, must have made experiments in this general direction. He employed a temperature of about 150°, I believe, in connection with as perfect a vacuum as he could secure by a powerful air-pump; and the air and steam which was thrown out from the discharge pipe of his air-pump, was loaded with a noisome stench of corrupt animal matter, mingled with the odors of the barn-yard. I learn also at the office of the Company in New York, that the flavor of onions is never perceptible in milk condensed on the Borden principle. The indications therefore are obvious, that subjecting milk to a moderately high temperature, and stirring it to promote rapid evaporation, will probably drive off the garlic flavor.

Talks on Farm Crops.—No. 6.

By the Author of "Walks and Talks on the Farm," "Harris on the Pig," etc.

"We do not see," write Elder Brothers, of Beaver Co., Pa., "why you speak so disrespectfully of the corn crop. It is one of the best crops that is grown in this country—far ahead of oats. Fifty bushels of shelled corn per acre is much better than thirty bushels of oats, and then an acre of fodder is as good feed as an acre of hay. Corn is a rank feeder, and the ground cannot be too rich—no danger of its going down. After the corn, sow barley or wheat. If we could leave oats out altogether, it would suit us. But they seem a necessary evil."

I cannot imagine what I have said that could be considered disrespectful to our grand American cereal, Indian Corn. I have a most sincere and profound admiration for the crop.

"They probably allude," said the Doctor, "to what you said, (May No. of the *American Agriculturist*), as to using artificial manures on corn. You said, if you used them at all, it should be 'on crops which command a relatively higher price than corn.'"

"That is still my opinion," said I, "but possibly it is an erroneous one. We greatly need a series of careful experiments, embracing a whole rotation, say corn, barley, wheat, clover, etc. I am inclined to think it would be found more profitable to apply the artificial manures to the barley, or wheat, than to the corn."

It seems clear to me that, in using artificial manures, we should apply them, (1*st*,) to those crops which require the *most labor* per acre; (2*d*,) to those crops which command the highest relative price.

This question of *price* is too often overlooked, and yet a moment's reflection will show that with wheat at $2 per bushel, an application of 200 lbs. of superphosphate, and 300 lbs. of nitrate of soda per acre, might be very profitable, while at $1 per bushel, it would scarcely pay. And so with Indian corn, it is impossible, from the very nature of things, that artificial manures can ever be cheap enough to make their application profitable to corn in sections where it sells for less than 40c. a bushel.

In such sections, farmers must look to the plant-food lying dormant in the soil, rather than to artificial manures.—"But suppose," said the Doctor, "they have land containing very little available or dormant plant-food."—"In such a case," said I, "they cannot afford to raise corn for 30c. a bushel, unless they can get manure for little or nothing."

Now I cannot see how these remarks can be considered in any way disrespectful to Indian corn. It is the crop of crops for cheap, rich land; and if we at the East are to compete with the West in producing cheap corn, I can see only two ways which promise success: (1.) We must drain our low, rich, alluvial land, and bring it into cultivation. (2.) We must make more manure on the farm. To do this, we may have to buy artificial manures, but if so, I doubt whether it will be found the most profitable to apply them directly to the corn crop.

On my own farm, I am making much more manure than the Deacon, or the Squire. I do it principally by buying bran, malt-sprouts, and other food for stock, and by feeding out all the grass, clover, hay, corn, corn-stalks, straw, oats, and peas, and mangel-wurzel and other roots that are grown on the farm. And now, when we have got the manure, what shall we do with it?

I do not propose to answer this question now, but I think you will find that most farmers who succeed in making their land rich, have a tendency to raise crops which bring a higher price than corn, or they keep improved stock that requires for its most rapid growth, more or less green food the year round. In other words, such farmers will raise mangel-wurzel, cabbages, turnips, rape, etc. They will raise corn, too, and raise large crops of corn, but they will, in connection with it, either before or after, raise other crops which directly or indirectly pay a higher profit.

In fact, before they finish their letter, Messrs. Elder Brothers allude to the very point I have in my mind. They say: "We have no roots this season, as we have been busy building a barn, and it seemed impossible to find time to plant any. You know everything comes in a rush, and we were afraid we would spoil some crop. How to do without roots this winter is a problem to be solved. We want to turn the Cotswold ram to the ewes in August. Can the lambs be raised without roots. The ram is a thorough-bred Cotswold, and got us good lambs last season. We do not feed him, but he keeps in good stock order, and weighs about 180 lbs. Can these heavy sheep be raised on grass alone? *We cannot do it.*"

This is right to the point. These heavy English mutton sheep are not raised in England on grass alone. After they have got their growth, they will *keep* fat on grass. But with sheep, as with other stock, early maturity and rapid growth when young, say 150 lbs. at 12 months old, require, as a rule, either remarkably rich grass or some extra feed in the shape of roots, bran, malt-sprouts or grain.

And we want sheep and cattle that require, and will pay for, rich grass and extra feed. There are money and manure in the business. The English want fat sheep, and we want rich manure. We can afford perhaps to put a heavy dressing of good barnyard manure on to a piece of land for corn. Cultivate the land thoroughly. Plow it in the fall, after the corn is off, and again in the spring, once or twice, and then sow it to mangel-wurzel, and for this crop, in this section, we may be able to use artificial manure to good advantage and decided profit.

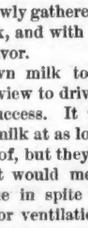
"I thought," said the Doctor, "you were never coming to the point. You think, then, that we cannot afford to use artificial manure for corn; but that we can afford to apply our barnyard manure to this crop, and then follow the corn with mangel-wurzel, which, with the aid of a little artificial manure, will utilize the manure left in the soil."

I do not give this as my settled opinion. We are feeling our way. There are many things to be taken into consideration. As yet, it is the convenience of tillage operations, rather than the dictates of chemistry, that controls our system of rotation.

Last year, after my corn was cut, and while it was standing in stooks on the land, we plowed between the rows of stooks. It is this early fall-plowing, while the ground is dry and hard, that does the most good. The land was rather stiff, and it was so dry and hard that we put 3 horses on the plow.

"But with three horses abreast," said the Squire, "I do not see how you could do much plowing between the rows of stooks."

We can plow just as close to the stooks as with two horses. The rows of corn are 3½ feet apart, and we put five rows into a stook, so that the rows of stooks are 17½ feet apart.



We commense plowing at *A*, turning the furrow towards the row of stooks, and when we get to the top of the field at *B*, turned "haw," and came back from *C* to *D*, turning, of course, the furrow towards the other row of stooks. We proceeded in this way until all the land was plowed between these two rows of stooks. Then commence at *E*, and plow to *F*, and back from *G* to *H*, and so on until the field is finished.

There was a strip, from *A*, *H*, to *B*, *G*, about four or five feet wide, that was not plowed. This was left until the corn was husked, and when husking, the bundles of corn stalks were placed in stooks on the plowed land, and this allowed us to plow the land on which the rows of corn stood. We commenced at *B*, and threw back the previous furrow to *A*, and then from *H* to *G*. In this way all the land was plowed. It makes a great many "dead furrows," but these are useful in carrying off the surface water in winter and spring. The land looks rough, but it lies up high and dry. If there is time, it may be plowed again just before winter sets in.

The only objection to this plan is, that it makes the land uneven, but by careful plowing and cultivating in the spring, it can be made level. And this repeated plowing, and cultivating, and harrowing, and rolling, is precisely what this rather heavy land requires, to prepare it for mangels—or in fact for oats, barley, or any other spring crop.

I am convinced that we shall find it to our interest to work our land more and more in the fall—and the earlier the better. Our springs are short, and we are in a hurry to get in the seed; the land is wet, and if plowed in this condition, we do more harm than good. If we wait until it gets dry, it is apt to turn up lumpy, and much harrowing, cultivating, and rolling is required, to get it in anything like good condition. And as everything is crowding us, we are often obliged to put in the crop with some of the land so hard that, unless we have an unusually wet spring, the seed is a long time in coming up, and the crops are "spotty."

And it is these poor spots which pull down the "average yield" to such a low figure. I have in my own barley field to-day portions that will probably give 50 bushels per acre, and spots, where the yield will not be 10 bushels. And yet these latter spots are naturally the strongest and richest land in the field. If in the right mechanical condition, they would yield a heavier crop than the lighter and more easily worked parts of the field.

This work must be done in the fall. I do not say

it *cannot* be done in the spring, but it is safe to say that in nine cases out of ten it will not be done.

After we are through sowing wheat, say the middle of September, we can from that time until winter sets in, very profitably employ our teams in getting the land ready for spring crops.

"But we are very busy," remarked the Deacon, "cutting corn and digging potatoes."

True, but it is better to hire an extra man than to let the team lie idle. Get a three-horse plow with a good point, and recollect that you are doing the work principally for the sake of breaking up and pulverizing the hard spots. You want a faithful man, who will take pains to do good work, especially where it is most needed. There is a great deal of poor plowing done on our farms.

Last fall I plowed my potato land, and this spring harrowed it and drilled in barley. It was not plowed in the spring, except a strip of rather heavy land, running diagonally across the lot. This was plowed. In drilling, the drill crossed this plowed strip, and there was unplowed land on each

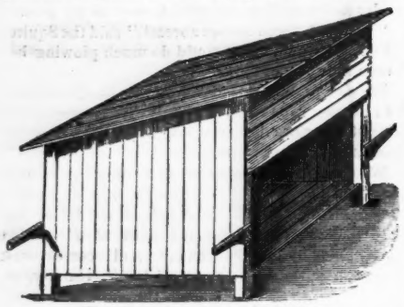


Fig. 1.—A PORTABLE PIG PEN.

side of it. I noticed that the seed did not come up as soon on the plowed strip, as on the unplowed land on each side. And the barley on the unplowed land was decidedly of a darker color. This was not owing to the difference in the character of the land, for some of the unplowed land was just as hard and stiff as the portion that was plowed, and some that was plowed was as light as the land adjoining. I am fully satisfied that the difference was due to the fact, that in plowing we turned up soil that was much colder than the unplowed surface soil that was merely harrowed. The latter had been exposed to the sun, and was warm enough to give the barley a good start.

Now, instead of plowing this strip of hard land once in the fall and once in the spring, it ought to be plowed twice in the fall. And the work should have been done while the land was dry and hard. Plow as soon as the crop is off, and harrow and roll until the hard and lumpy spots are reduced to the finest condition. This is the important point. It may not be necessary to harrow, roll, and cultivate the whole field, but do not leave it until the whole surface is worked as fine as if you were going to sow it. Then, before winter sets in, and if possible while the land is still quite dry, plow under this fine, mellow surface soil. This will bring up the hard, lumpy soil underneath to the surface, and I would leave it rough for the winter. In the spring these clods will dry out quickly, and a good harrow will reduce them to powder. A cultivator following, will mix this fine, dry, warm soil with the colder and damper soil underneath, and soon give you a warm, mellow seed-bed.

A Portable Pig Pen.

Where a single family pig is kept, provision for

Fig. 2.—YARD TO PORTABLE PEN.

changing the locality of its pen is often necessary, so that the pig may be kept wherever it is most convenient. It may be placed in the garden, at the time when there are waste vegetables to be disposed of, or it may be penned in a grass lot. A portable pen, with an open yard attached, that will be found useful for a pig or a few chickens, is shown in the accompanying illustrations. At fig. 1 is the pen, the engraving showing it so clearly that no description is needed. At fig. 2 is shown the yard which is placed with the open space next to the door of the pen, so that the pig can go in and out freely. The yard is attached to the pen by hooks and staples, and both of them are provided with handles, by which they can be lifted and carried from place to place. Both the yard and pen should be floored, and the floors should be raised a few inches from the ground, that they may be kept dry and made durable.

The Narragansett Turkey.

The popular bird known as the Narragansett Turkey, originated on the shores of the bay of that name some years ago, and is very largely raised in Rhode Island and Eastern Connecticut. It is a large gray variety, with lighter or darker shades, according to the fancy of the breeder. The most striking and uniform feature about the markings of the feathers, is a white patch upon the wing bow. Not much pains has been taken to breed them to a feather, as the chief thing looked after is size. There is probably no other section, in this country at least, where turkey raising receives so much attention among farmers, and where the average weight of flocks runs so high as in the above named localities. The soil and climate are admirable, no disease prevails, and the turkey crop is about as sure as anything grown upon the farm. This breed is the result of careful attention to the selection of parent birds, and good breeding, continued through many years. The earliest and best formed birds are selected for breeding every year. The practice of breeding from two and three-year-old hens, is gaining in favor with the more intelligent farmers, though it is still the exception. Great importance is attached to the selection of the male bird. He must be perfectly formed, with a straight breast-bone, rather coarse, stout legs, and a proud carriage. A young cockerel, weighing twenty-six to twenty-eight pounds at the beginning of the breeding season, is the model bird to lead the flock. The young hens should weigh thirteen to fifteen pounds. It is not uncommon for farmers in this region to get three or four hundred dollars for their turkeys sold at Thanksgiving and Christmas. If one is going into turkey-raising, it will pay to get eggs or birds from a stock that has been bred for a score of years or more, for their size. The Narragansetts are a well-tested breed, and are hard to beat.

In starting a flock, we have invariably had the best success with birds. It takes a little more capital to start the enterprise, but a year in time, and advantage of seeing the stock, and knowing what sort of birds are likely to be raised, are gained. We have now conscientious poultry breeders, who have given years to the study of their business, and when we buy their birds we reap the advantages of their long experience.

CONNECTICUT.

Home-Made Corn-Sheller.

A Canadian correspondent sends a sketch and description of a home-made Corn-Sheller, which may answer a very good purpose where there is leisure to make it, and means of purchasing any of the manufactured shellers are wanting. As a general rule, we do not think it wise for a farmer to spend the time necessary to make a poor, inefficient substitute, for a cheap, substantial implement or machine, when that time can be put to more profitable use. If there is an acre of waste land about the farm, or a swamp to be drained, weeds to be rooted out, stone to be picked off, or any other work to be done that will add to the productive capacity of the land, these should be done first, and if there is time to be spared, then other things may not be left undone. During the winter season, or in wet weather, it may pay very well to fix up such useful contrivances as are frequently described or suggested in the *American Agriculturist*, but we know of a case where a farmer who spent a day in

Fig. 1.—SIDE-PIECE.

Fig. 2.—SIDE-PIECE.

making a splint broom, on the same day lost a calf which fell and was smothered in a sink hole which one hour's work would have closed. For a 25 cent broom a calf worth several dollars was thus thrown away. "Everything in its place and season," is the rule to be observed as regards all such things.

The corn-sheller referred to is described as follows. A circular piece of plank, (figure 1), 2 inches thick, is studded with wrought nails, driven so as to leave three-quarters of an inch projecting upon the face, and the points are clinched upon the reverse side. At figure 2, is a similar piece of plank, furnished in like manner with projecting nails. The first piece of plank has a round hole in the center which fits the end of the crank, figure 3; the other piece has a square hole, which fits the square portion of the crank; so that when the crank is turned, one piece of plank only revolves, the other is held stationary by being fastened to the frame. The two discs are fitted into a rim, made from part of a cheese-box, one being nailed to it

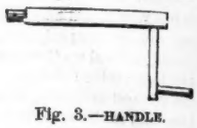


Fig. 3.—HANDLE.

Fig. 4.—CORN-SHELLER COMPLETE.

and one being loose. A hole is made in the rim to receive the corn ears, and as they are shelled, the shelled corn and cobs fall out of an opening in the bottom of the rim. The whole is fitted in a frame (fig. 4) similar to that of a grindstone.

How to Mix Cement.

In the *American Agriculturist* for Dec., 1874, we gave some directions, with several illustrations, for building in concrete. Since then we have had frequent inquiries in regard to various details, especially as to the proper method of mixing the concrete. As this is a very important part of the business, we now give some directions both as regards mixing concrete, and the cement alone. The article to be used is the Rosendale cement, which is manufactured at Kingston, on the Hudson, N. Y. This is nearly as good as the imported Portland cement, and much cheaper. The cement is made from what is known as hydraulic lime-stone, that is, a rock which contains, besides ordinary lime-stone, some clay, silica, and magnesia. Pure lime-stone contains only lime and carbonic acid, in the proportions of 56 parts of the former to 44 of the latter in 100; when this stone is burned, the carbonic acid is driven off by the heat, and pure or quick-lime is left. When this is brought in contact with water, the two combine, forming hydrate of lime; during the combination, heat is given out; the operation is called slaking. When the water is just sufficient to form the combination, a fine, dry powder is pro-

duced, which we call dry slaked lime. When the water is in excess, the surplus is mixed mechanically with the lime, and forms what is called the milk of lime, or cream of lime, according to its consistence; it is this pasty substance which we mix with sand, to form building mortar. But when we have clay mixed in a certain proportion, either naturally or artificially, with the lime-stone, and this stone or mixture is burned in the same manner as ordinary lime-stone, we get what is known as hydraulic lime, because it combines with a much larger proportion of water than pure lime, and in combining with it, instead of falling to powder, like ordinary lime, it hardens into stone again. This hardening takes place even under water; the hydraulic lime combines with just so much water as is required to "set" or harden, and leaves the remainder. It possesses this property, also, when mixed with sand in proper proportions, and when so mixed, the cement will adhere very firmly to the surface of any stone to which it may be applied. This property is made available in constructing works of concrete, which consists of broken stone

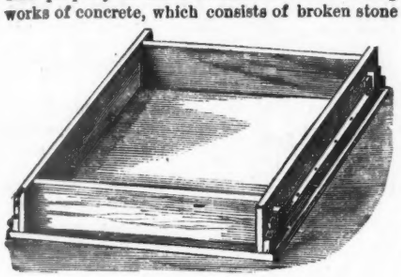


Fig. 1.—BOX FOR MIXING CEMENT.

mixed with such a quantity of cement, that, when it is packed closely, the surfaces of all the pieces of stone are brought into contact with the cement, and the spaces between the fragments of stone are filled with it. That there may be no more cement used than is actually needed, the mixture is rammed down solidly, until the fragments of stone are brought into close contact with each other. The

Fig. 2.—SIDE OF CEMENT BOX.

composition of the impure or hydraulic lime-stone, which behaves in this useful manner, is, in the case of some of the Kingston stone mentioned, as follows: Carbonic acid, 34.20 per cent; lime, 25.50; magnesia, 12.35; silica, 15.37; alumina (clay), 9.13; and peroxyd of iron (which is useless or worse), 2.35. On account of this difference in character between lime and cement, a different treatment is necessary for each, and each is put to different uses. The cement makes a much harder and more solid combination with sand, and is therefore chosen

Fig. 3.—END OF CEMENT BOX.

when great strength is required. Its rapid setting, when mixed with water, also requires that it be used as soon as it is mixed, and renders a rapid mixture necessary. The cement and sand should, therefore, be mixed together dry, and very thoroughly. Four parts of sand to one part of cement are the proportions generally used. These may be

Fig. 4.—MANNER OF FASTENING BOX.

mingled in a box of suitable character, and the mass is so spread as to have a hollow in the center, into which water is poured. The sides of the heap are gradually worked into the water, with a common hoe, in such a way as to prevent the water from spreading about, and as it is absorbed, more water is poured in, until the whole is brought to a thin semi-liquid condition. A box, very suitable for this operation, is shown at figure 1. This is made of pieces of plank, prepared as follows: The side pieces are shown at figure 2; the end pieces at figure 3, and the bottom piece at figure 4. The end pieces are made with tenons, which fit in mortices in the side pieces, as shown in the engraving, and

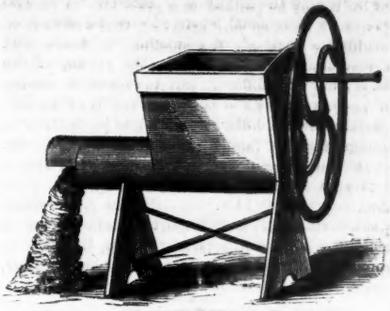


Fig. 5.—MACHINE FOR MIXING CEMENT.

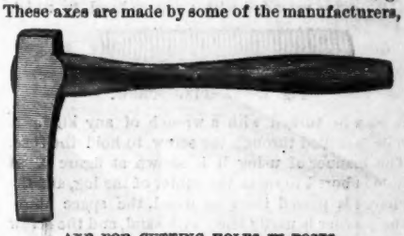
the frame thus made is held together by keys driven into the holes seen in the tenons. The bottom planks are fastened together with cleats, so placed as to receive the frame and fit snugly. Iron bolts are put through holes in the cleats, as shown in figure 4, and through the holes in figure 2, and by means of nuts with washers under them, the whole box is brought firmly together. Such a box, after having been used for this purpose, will be found very useful for mixing feed in the barn, or for many other purposes, and may, therefore, be well made at the first. When the mortar is mixed, the broken stone may be thrown into it, beginning at one side, and the whole is worked up thoroughly with the hoe, so that every piece of stone is coated with the cement. A machine, that is easily made, may be used for this mixing, and is also very useful for mixing ordinary mortar for building or plastering. It is shown at figure 5. It consists of a box set upon feet, with a smaller box attached at the rear end, having an opening at the bottom where the mortar is seen escaping, and a shaft, having broad, flat arms on it, placed at a somewhat acute angle with the line of the shaft, so that they will operate as a screw to force the mass along the spout and out of it at the opening. A crank handle is fitted to this shaft, and if a fly-wheel can be borrowed from a feed-cutter, or a corn-sheller, and attached to the shaft as shown, so much the better. The materials to be mixed are thrown into the box, and by turning the handle, the whole will be thoroughly incorporated with great rapidity and ease.

How to Use Sea-Weed.

Complaints are frequently made by those farmers along the coast, who are just beginning to use sea-weed, that it will not rot. This is probably true of dry eel-grass as it is sometimes used. We have known it to be sometimes plowed into a rather dry, sandy soil, and remain for a year without much change. But even this dry sea-weed can be utilized and made to help the manure heap in several ways. In the absence of straw or sawdust, it makes a fair bedding for the stables and sty. We have used it constantly for the last five years in the horse stable, and where rye straw is worth fifteen dollars a ton, and sea-weed can be had for the carting or scowing, it is good economy to make bedding of sea-weed. It takes more of it than of straw to keep the horses clean, but it serves the same purpose, and the larger addition to the manure heap is an advantage. It becomes saturated with urine and manure, and is reduced very fine in the fermentation of the manure heap. It is worked up quite as effectually in the pig sty. A very large and profitable addition may be made to the compost heap by either of these processes, when there are good facilities for gathering the dry eel-grass. But most shore farmers prefer to gather this and other sea-weeds in the green or wet state, in a mixed mass, as they are thrown up by the storms and tides upon the shores. In many localities the coves and tidal streams are raked, and the gathered weed and mud is scowed to some convenient landing-place, and then carted to the farm, sometimes to a distance of six or eight miles. It goes into the barn-yard or sties, and is mixed with other manures, and readily ferments. Sometimes this material, gathered in the summer and fall, is carted directly to the field where it is to be used, and is composted with headlands or peat. The sea wrack, gathered later, and made up principally of kelp, rock-weed, and the finer algæ, is often spread directly upon the land as a top-dressing, or to be plowed in. These weeds are rich in nitrogen, decay rapidly, and make excellent manure. Capital and labor spent in gathering this harvest of the sea, are well invested. CONNECTICUT.

A Fence-Post Axe.

We give herewith an illustration of an axe made expressly for cutting holes in fence posts for receiving the ends of rails in making post and rail fence. The blade is of exactly the same width as the hole to be cut in the post, so that the hole is cut very easily, and if used with sufficient skill, it is made so smooth that it needs no trimming. These axes are made by some of the manufacturers,



AXE FOR CUTTING HOLES IN POSTS.

but where they are not kept for sale, they are very easily made by a blacksmith from a piece of tire iron doubled, and into which a steel blade can be welded.

Draining Cellar Walls—Prevention of Dampness in Cellars.

Wet cellars are very disagreeable and unhealthful, and unfortunately far from uncommon. They are frequently caused by permitting the drip from the eaves to fall upon the ground, where, for want of a gutter to carry it away, or other sufficient drainage, the water saturates the ground, and soaks through the cellar wall. But, from whatever cause the dampness occurs, it should be removed as completely as possible. A house should never be built upon a site from which there can be no drainage, and if this precaution has been observed, the cellar may be made perfectly dry by using either of the methods here illustrated. At fig. 1 is shown a method in which a drain is made beneath a brick wall, and the space next to the wall, upon the outside, is filled with small stones. The earth is then not in contact with the wall, and all moisture falls directly downwards through the layer of stones, and reaches the drain under the wall. It will be noticed that the stone outside is carried lower than the cellar floor, the wall is therefore always dry. At fig. 2 a different method is shown. Here is a stone wall with a broad foundation beneath it. This is so made that a passage-way is left in the stone for any water that may be in the soil. This

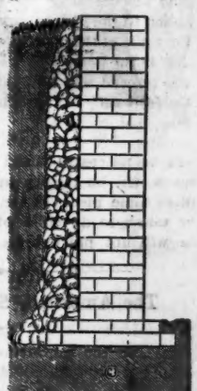


Fig. 1.—CELLAR WALL.

Fig. 2.—CELLAR WALL.

water-way must be made completely around the wall, and in either case, the water that may gather beneath the wall, should be carried off through a drain made expressly for it. Without this outlet, it is useless to make drains beneath the cellar, for if the water is not quickly carried away, it will rise in the soil outside, and inside the cellar through the floor, as badly as before.

A Method of Blasting Logs.

To break up very knotty logs, that are difficult to split, the easiest method is by blasting. This might be more readily done, in many cases, if some substitute were provided for the tamping needed to confine the powder. Where sand, pounded stone, or other material for tamping, is scarce, an iron screw may be used as a substitute. A screw of the proper kind is shown at figure 1. This is made 1¼ inch in diameter, so as to fit tightly in a 1¼-inch hole, and is provided with a square head, by which

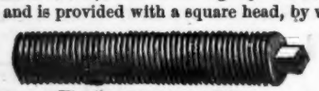


Fig. 1.—TAMPING SCREW.

it may be turned with a wrench of any kind. A hole is drilled through the screw to hold the fuse. The manner of using it is shown at figure 2. A hole is bored to reach the center of the log, and the charge is placed there as usual, the space above the powder is partly filled with sand, and the screw is turned down tightly upon it; the fuse of course having been adjusted. To prevent the screw from being thrown away by the explosion and lost, it

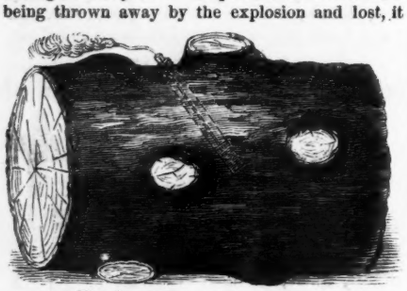


Fig. 2.—METHOD OF BLASTING.

will be necessary to roll the log over so that the screw will be thrown against the ground, or to place some pieces of timber upon it. Care must be taken to do either of these in such a manner as will not prevent the fuse from burning.

The American Silk Manufacture.

In 1860 the production of silk in America was valued at two million dollars. In 1876 the value of the silk made in this country was not less than twenty-five million dollars. No branch of manufacturing industry has advanced more rapidly than this, and none promises to grow more steadily in the future. But it is worthy of note that the raw material for this manufacture is wholly imported, or the exception is so trifling that it need not be taken into account. At the same time, no country in the world possesses a finer climate and soil for the rearing of the silk worm, and the cultivation of the trees upon the leaves of which it feeds.

Unfortunately, the light, easy, agreeable industry of breeding and rearing the worms and reeling the fibre from the cocoons, is not considered as being worthy the notice of farmers, or farmers' families. Yet the day of small things has not wholly passed away, and indications seem to point to a necessary return to the smaller industries of the family, which have been abandoned or neglected during the flourishing times of the past few years. Everything is tending towards the exercise of economy in small as well as great things, and an industry which may profitably employ the children on the farm, is not to be overlooked or despised. The exhibition of silkworms and their cocoons at the Centennial, did much to inform the public as to the character of this employment. The exhibit of Mr. Crozier, of Silkville, Kansas, was very interesting in this way, and it is to be hoped may be effective in turning the attention of farmers' wives who have more than usual leisure, to the advantage of learning the methods of managing the worms and of teaching their daughters. The reeling of the silk is somewhat difficult, but the machine needed for it is very simple, and can be worked by a little girl.

Several million dollars a year might be distributed amongst farmers' families, that are now sent abroad for the purchase of raw silk, if only the attention of those who are able to do this easy work were effectively turned to it. In California, the raising of silkworms' eggs is an important industry, but in this the silk is sacrificed, or at most, the cocoons from which the moth or parent insect has escaped, have a very low value for carding purposes.

SEED-GRAIN WILL STAND ANY AMOUNT OF COLD.—At a late meeting of the Linnean Society of London, a pot of growing wheat was exhibited which was raised from some of the grain left at Polaris Bay, 81° 38′ N. lat., by the American polar expedition, in 1872, exposed to all the intense cold of that region. A sample of this grain was sown at Kew Gardens, and about two-thirds of the grains germinated. So did two peas, and a grain of Indian corn.

The Economy of Agricultural Machinery.

It is plainly evident that to make the business of farming profitable, at the present time, it must be carried on by the help of all possible economical aids. No farmer can afford to cut hay with the scythe, or grain with the cradle, now-a-days. It costs too much, and the farmer whose produce costs more than that of his neighbor, can not afford to sell so cheaply. But as a rule, the market price of any thing is, what is costs to produce it and get it to market. Accidental circumstances may tend to advance or depress the price temporarily, but it gradually finds it level again, by force of a rule which is always at work, and is of universal application. The cost of a thing is its average cost; there can not be two prices, one high and one low, at the same time, so that the average price is fixed between the two extremes of highest and lowest cost. Therefore, he who produces any thing at the least cost, makes an extra profit; he who produces at a mean cost, makes a fair profit, and the one whose product costs the highest, fails to secure any profit, but may gain a loss instead. Now the actual cost of a thing is measured by the labor required to produce it. If a day's labor is worth $2.50, and four days' labor are required to produce a ton of hay, by the help of the best labor-saving implements, and eight days are required to produce it without the aid of these, the probable selling price will be $15 per ton. One man will be paid $3.75 per day, at this price, and another will only receive $1.87½; and if the latter hires any labor, he will not get his money back. This illustration is of as wide application to agricultural industry as to all others. To apply it to the making of hay, for instance, we may see how much profit may be gained from the investment of a certain sum of money in haying machinery. A full set, including mower, tedder, rake, loader, and hay-fork, and carrier, may cost about $350. With care, these may be made to last 20 years, in which time a yearly allowance of 10 per cent will pay for them, and also the interest on the cost with necessary repairs. The charge will therefore be $35 a year for the use of all this machinery. If there are only 10 acres of land in hay, to be mowed each year, the charge per acre will be $3.50. This must be saved out of the sum that would otherwise be necessarily expended for hand-labor. A probable estimate, founded upon what we have been able to do, or have seen done with machinery, and what we have had done by hand-labor, may be made as here given, viz: The cost of making 5 acres of hay by machinery, will be about equal to the labor of two men for one day and a half, costing, at $1.50 a day, $4.50. This may seem a very low estimate, but when we can cut one acre of good grass per hour, with such a mower as the Champion Haymaker, or the Buckeye, and by the use of a tedder, horse-rake, and hay-fork, have some of the 5 acres of hay safe in the barn before night, and the remainder all in before noon the next day, the estimate is a reasonable one. It is supposed that the weather is all that can be wished, and with everything in favor of quick work, it will be more than we have found four average laborers will do, to have 5 acres of grass down in one day when using scythes. The turning, curing, and raking, may easily occupy these men two days, and one day more will be occupied in loading and unloading it into the barn. The cost will be then $24.00. The difference is $19.50, or more than the $3.50 per acre. But with a set of haying machinery, 50 acres can be harvested with ease in the time required by four men without it. In this case, the cost per acre is very much less, and just here it might be pointed out, how great an advantage the owner of a large farm enjoys, through the help of machinery, over the occupant of a smaller one. It used to be the other way, and a small, compact farm could be rather more profitably managed than a large one. But while this is true yet, there is a certain benefit accruing to even so small a farm as that which has but 10 acres of grass to cut yearly.

This is but one instance among many which might be pointed out. In the cutting of fodder, the cost of a good fodder-cutter may be saved in the more economical feeding of a single cow or horse; for thrashing, we have found it profitable to own a horse tread-power and thrashing machine for a 90-acre farm, and so on through the whole list of implements and machinery. The time has come when, in the close and unavoidable competion, not only of farmers with farmers, but of agriculture with other industries, it is absolutely necessary that every help should be secured that can cheapen the product, else a man will labor against so many difficulties, that he will either be overworked, or will become embarrassed for want of sufficient remuneration. Hand labor cannot compete with horse labor, nor horse labor with steam. The unaided hand cannot compete with the united brains of inventors and mechanics, nor can the man who has no capital to assist him, succeed in competition with his neighbor, who is able to thoroughly stock and furnish his farm. It cannot be denied, that in some cases farming does not pay; this is not the fault of farming, but of the manner in which the industry is managed. It is true, and "pity 'tis, 'tis true," that this fact has a very uncomfortable inference for some farmers, but we see no help for that but in their keeping up with the times.

Insurance of Farm Buildings.

No farmer can afford to have his homestead or buildings uninsured. To have them burned by accident would be ruinous to him, and a conflagration, which may occur at any moment, might involve the loss of buildings, tools, implements, live stock, and crops. No farmer can afford to run this risk while safe insurance is to be had so cheaply. But unless the insurance is procured in a perfectly safe and honorable company, the policy is hardly to be held as any security. In choosing a company in which to insure, it would be wise to select one which does an extensive business throughout the country, and thus lessens the risk of loss, averaging, as it were, its risks. Those insured are always more watchful and careful of danger. The wise precautions enforced by the insurance company, beget a habit of precaution and carefulness on the part of the insured, particularly when it is known that a want of care, and the reckless use of lights and fire, will vitiate a policy. Then dangerous and explosive oils will be avoided, and only those that are known to be perfectly safe to use, will be burned. There will be no smoking in the barn, nor matches left loosely on the girts or sills. It is a peculiarity of mankind that they will more readily obey any regulations made for them, than follow their own knowledge of what ought to be done. Men would rather be governed than govern them-

selves, and very readily submit to reasonable control. Thus it is always found that greater neatness, carefulness, and caution are found about farm buildings when they are insured. No careful business man will run the risk of losing his property by fire, and every farmer should be a business man.

Scabby Legs in Poultry.

The unsightly disease which affects the legs of fowls, causing them to swell and become distorted, is due to a mite, a small insect which is similar in appearance to that which causes scab in sheep. It is roundish-oval, and semi-transparent, about one eight-hundredth of an inch in length, appearing, when magnified 400 diameters, about half an inch long. If the scales from the leg of a diseased fowl are beneath the microscope, a number of these mites may be found between them. Beneath the scales there are spongy, scabby growths, in which the eggs and pupæ of the mites are to be seen in great numbers. The pupæ are very similar in shape to the mature mites, but are very much smaller, appearing, when viewed with the above mentioned power, about one-tenth of an inch in length. The disease being of a similar character to the scab in sheep, or the mange in dogs and cattle, and it may be cured by the same treatment. We have cured fowls of the disease, before accurately knowing the cause, by applying to the legs a mixture of lard with one-twentieth part of carbolic acid. This should be applied with a stiff brush, such as one of those sold with bottles of mucilage. A very small painter's "sash tool" would answer the purpose, but something must be used by which the medicated grease can be applied thoroughly to the crevices between the scales. A mixture of equal parts of lard, or sweet-oil, and kerosene, will be equally as effective as the carbolic acid mixture. It is probable that lard or oil alone would be effective, but the kerosene more easily penetrates between the scales, and the carbolic acid is sure death to the parasites. The remedy being so simple, it will be inexcusable if this disagreeable affection is suffered to remain in a flock; while, however, one fowl is troubled with it, it will certainly spread, as the mites will burrow beneath the scales of the other fowls. If precautions were generally used, the parasite could soon be exterminated. It should be made a disqualification at poultry shows, for fowls to be affected with scabby legs or feet, in any degree whatever, for we know that several poultry yards are not free from this disease, and whenever affected fowls are sent out, the disease goes with them.

A New Commissioner of Agriculture.

It is announced that Gen. William G. Leduc, of Minn. has been appointed to succeed the venerable Watts as the head of the Department of Agriculture. Some of the political papers are already casting slurs upon this gentleman, whose chief fault seems to be, that he is unknown to them and to the public generally. We are not aware that the late incumbent was known outside of his own county, until the former President placed him in a prominent position. Our present satisfaction in the matter, is in the fact that neither of several eminently unfit candidates, who tried very hard to get the office, succeeded. It is certainly unfair to pre-judge the new Commissioner; so far as the *American Agriculturist* is concerned, we welcome him to the office with our best wishes for a successful career, and he shall have our hearty support until he proves himself unworthy of it. One paper finds fault with the appointment because the Commissioner has not heretofore been prominently identified with agriculture. He certainly cannot know less about it than some who were put forward for the position. Indeed, if a profound knowledge of agriculture were a crime, and either of the former commissioners had been put on trial for it, any intelligent jury would have rendered a verdict of "not guilty." What is wanted for the place is a man of general intelligence, broad views, and marked executive ability. Our great War Secretary was not a soldier, and the Navy Department has been well managed by men who knew nothing about the sea. If the present Commissioner is not a practical agriculturist, and knowing his own deficiencies, will surround himself with proper advisers and subordinates, he may better serve the agriculture of the country than one who, having had experience on a small farm, thinks he has nothing to learn. These small men measure everything in their little pint pot of experience, and all their idea of science, is a knowledge of the "signs of the Zodiac." If we have now a man whose vision is wide enough to take in the whole country, and the relations of agriculture to the national welfare, we shall have reason to rejoice. Let us wait and see.

More About Cutworms.—Climbers.

[It was not practicable to give all that our correspondent at "The Pines" has to say about cutworms with the rest of his article on page 302, and in view of the fact that there have been numerous inquiries concerning these insects, which this answers, we give the remainder here.—ED.]

Not many years ago there was a lively discussion in the agricultural papers on the question

Can the Cut-worm Climb?

The Cut-worm was accused of injury to trees, by those who declared that they had by lantern light caught *it* at work. On the other hand, others as strongly asserted that it was impossible for *the* cutworm to climb, as *it* always worked just on the surface, and took off the plants nearly level with the soil. Both sides were right, but they, as well as the majority of the people at the present time, were in error in supposing that a cut-worm was a cutworm, and that there was but one, the country over, while in fact there are a dozen, and I don't know but more, in different parts of the country, all the caterpillars, or larvæ, of Owlet, or night-flying moths, of four different genera. The worms that make the havoc with cabbages and other crops at the East, are two or three species of *Agrotis*. For some reason they have been especially abundant this year, and attack almost any green thing that is not too large. They have not only made havoc in the vegetable garden, but they, probably actuated by a desire to know if it is as valuable for caterpillars as for cows, have paid special attention to my trial piece of Prickly Comfrey, which for a while seemed to go backward. Then in the flower beds, they have also left vacancies, and where there are only one or two plants of a kind that we specially value, they select those in preference. The climbing cutworms, of which there are three or four, have been especially destructive in some of the Western States; they ascend the trees at night, and in a short time will strip them of every bud. They take the fruit-buds first, and then the wood-buds, preferring this to any other kind of food. They have several natural enemies, but there does not yet appear to be any wholesale way of killing or trapping them, and the slow process of digging them out of their holes, which are easily found, is still the most effective. Artificial holes, made by means of a sort of dibble that will make several at once, such as was figured a year or two ago, have been used to entrap them, and they may be crushed in the holes by thrusting in the same dibble. A guard, such as I have mentioned for tomatoes, may be used in many cases. For the climbers a guard of tin may be placed around the trees; jarring the trees an hour or two after midnight will bring them all down, but the better way is to keep them from going up. Should this abundance of cut-worms continue, they will be a pest of sufficient magnitude to warrant, if not a Commission by Congress, at least by the State Legislatures to investigate them.

THE POTATO-BUG IN GERMANY.—It is reported in the daily papers that the Colorado potato beetle has appeared in a field in Germany, and that the government officials caused the field to be covered with tan saturated with petroleum, which was set on fire. Of course the proprietor is paid for his crop, thus sacrificed for the public good. It is one of the benefits of a strong government, that such measures are possible.

The Echo Farm Dairy.

The herd of pure-bred Jerseys, which are described on page 293, is kept by the owner, F. R. Starr, of Litchfield, Conn., for the purpose of a "gilt-edge" butter dairy, as well as for breeding purposes. Mr. Starr's arrangements for his dairy are every thing that can be implied in the term "gilt edge." Although the dairy building is a temporary affair, not very well adapted as to room and interior arrangement for the purpose to which it is applied, nevertheless, in every thing but space and roominess, it is all that can be desired. There is the perfection of neatness, order, and cleanliness, and evidence on every hand of skillful management. The milk is set in deep pans of the ordinary size, 20 inches deep, and 8 inches in diameter, in a pool of cold spring water. The cream, before being churned, is forced through a strainer, by which it is freed from all lumps, or such undesirable accidental accessories, as are too common in many tolerably well managed dairies. As it is a matter which relates to cleanliness, it might here be mentioned that a very convenient wash-room, with every facility for securing perfect cleanliness of person and clothing, is provided in the stable for the milkers, and the use of the room is enjoined upon every person employed about the cows. Quiet demeanor and the kindest treatment of the animals is also the rule here, and it is hardly necessary to say that this is enforced, for no men we have seen anywhere could surpass those employed by Mr. Starr in the kindness they display for the beautiful animals under their charge. "It goes without saying," that this feeling is evidently reciprocated by the animals. The strainer, which is made by Parker & Worthington, of Westchester, Pa., is so constructed that, by the oscillation of the arm at the top, the cream is forced by plungers

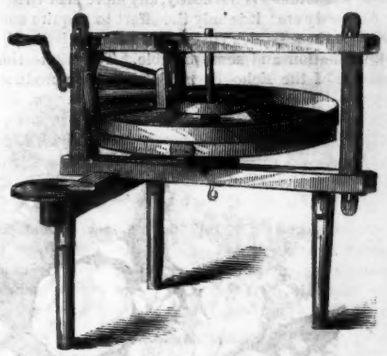


Fig. 1.—SPEAKMAN'S BUTTER-WORKER.

through fine gauze, by which it is brought into perfect condition for churning. The churn used is the well-known Blanchard, of the largest size, with a capacity of 150 pounds of butter, and is operated by a horse-tread power. The butter is worked by the rotary butter-worker, made by Speakman, Miles & Co., Westchester, Pa., shown at figure 1. This butter-worker is on the same principle as that which received the first premium at the recent dairy exhibition at Hamburg, and is very effective and successful in operation. The butter is made up in round prints, and is packed for shipment to the purchasers, in boxes of home manufacture, but of very excellent design and construction. For the purpose of maintaining a low temperature during transit, the ice-chamber is placed in the center of the box, and is large, while the box itself is small. The size shown at figure 2, (see next page,) holds only 10 pounds. This box is 14 inches long, 12 inches wide, and 10 deep; and the butter is placed upon loose trays (shown at figure 3), which have openings in the center, through which the ice chamber passes. The trays are an inch smaller each way than the inside of the box, so that there is an air space all around them, which keeps the butter cool. The box, when filled, is fastened by a staple and padlock, and an iron handle is fixed on the lid, by which it may be lifted. Larger boxes, (shown at figure 4), holding about 40 pounds, are also used.

These are make upon the same plan, are 30 inches long, 18 inches wide, and 14 inches deep. Instead

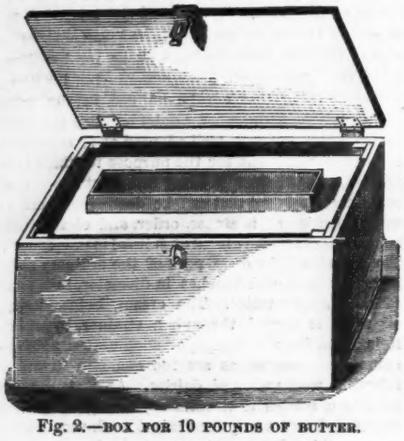


Fig. 2.—BOX FOR 10 POUNDS OF BUTTER.

of trays, plain shelves are used for the butter to rest upon. No coloring, whatever, is used in this dairy, and the butter is of a true, and not a fictitious, Jersey color. It is pertinent here to remark that, while Mr. Starr's arrangements are very excellent, yet they are in no way costly. So far as expenditure is concerned, the dairy-room and dairy implements could be had upon every dairy farm. Cleanliness is not costly, any more than virtue and honesty are; it is only the effort to acquire and practice these, which costs; and the cost is simply determination and some trouble. To imitate the practice of the Echo Farm Dairy, and to produce

Fig. 3.—TRAY.

butter of similar character, is possible for every dairyman, and in describing this dairy, we wish emphatically to note this point, that what is done here may be done anywhere, if the determination is made, and the skill is acquired. For instance, we recently inspected some well-flavored butter that was grossly adulterated with hairs. This is inexcusable, but it is a very prevalent fault in much of the butter which comes to market. Under the arrangements at Echo Farm Dairy, such an occurrence is impossible. The systematic care, by which the admission of impurities into the milk is entirely prevented, need not cost one dollar a year in money. The expense of the necessary strainers, is the only outlay, and the time taken to use them is the only added expense. It is the same with all the other arrangements about the dairy. It is an encouragement for those who will practice these dairy virtues, that these will be their own reward, in bringing a better price for the product; for, unfortunately, notwithstanding all the efforts and examples that may be put forth for the reform of the dairy, it is only here and there that a genuine convert from the too common practices can be made, and it is very certain that choice butter will always readily sell at very profitable prices, and never exceed, if it reaches the demand. There is a plenty of room in the markets for dairy goods of the highest class.

Fashions in Bouquets—The Fan.

To those who have a real love for flowers, the idea that they come under the rule of fickle fashion, will seem improbable if not repulsive. Yet many a florist knows to his cost that fashion, in cities at least, rules as rigidly in bouquets as it does in bonnets. Many a grower has, at much trouble and expense, provided a stock of camellias, only to find, just as his plants are coming on finely, that camellias were out of and roses were in demand, or that had his frames, or houses, been filled with Lily of the Valley instead of violets, he would have hit the fashion of the winter. Not only do fashions in flowers vary, but the form and finish of the bouquet differs. A New York bouquet is strikingly different in its style from one made in Boston, while that in Philadelphia will differ from both. Sometimes the border is of paper cut to represent lace, sometimes it is of satin, again of swan's-down, and of various other materials as fashion may dictate. Not only in the more pretentious hand-bouquets, but in the little clusters for the button-hole, does fashion declare that this or that flower is the thing that one must wear to be in style. Especially in London is great attention given to the matter of button-hole bouquets, which are there considered essential to a gentleman in full dress, and numerous designs for making these, giving the desirable combinations of flowers and green, are frequently presented in their horticultural journals. Just now the London sensation in the way of bouquets, are

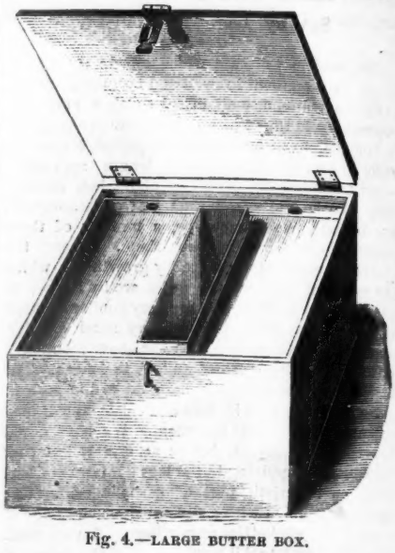


Fig. 4.—LARGE BUTTER BOX.

those made in the shape of a fan. If we mistake not, bouquets of the fan style have been made by our florists, at any rate the idea appears to have struck the Londoners as a new revelation, and a contributor in a recent "Gardener's Chronicle," fairly "spreads himself" on the subject, and writes a great deal without telling much. We borrow the engraving to show the style of the bouquet, fig. 1 giving the front, and fig. 2 the reverse side. Though an enumeration of all the flowers and sprigs is given, we are not told how the bouquet is made, but it would be very easy to make a frame work of broom-corn splints, or something stiffer, for the foundation. In this case the trimming along the upper edge at the back is of plaits of stiff white satin ribbon, with swan's-down to finish off.

Fig. 1.—FAN-BOUQUET, FRONT.

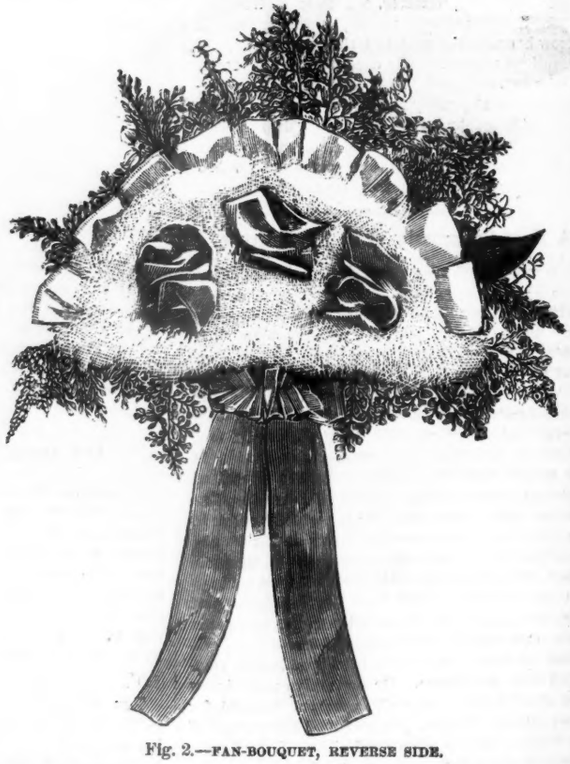


Fig. 2.—FAN-BOUQUET, REVERSE SIDE.

The Ornamental Species of Clover.

Those whose knowledge of clovers is limited to the common White and Red Clover of our fields, will, perhaps, be surprised to know that over a hundred species have been cultivated, and that a large share of these have been, first and last, introduced into European gardens as ornamental plants. If, indeed, our common Red Clover (*Trifolium pratense*) could only be raised with difficulty and under glass, no doubt our ideas of its beauty would be greatly modified. Not many years ago, the Crimson and the Orange Clovers (*T. incarnatum* and *T. aurantiacum*) were popular garden annuals, both brilliant and showy, but of late they seem to have disappeared from the seedsmens' catalogues. A variety of the common White Clover (*T. repens*, var. *purpureum*), is cultivated in European gardens under the name of Four-leaved Shamrock. This, instead of the three leaflets of the ordinary form, has four or five leaflets, each of which has a broad purplish spot on its upper surface; sometimes the whole leaflet is purple, but most generally there is a more or less wide marginal border of green. Several other perennial species are popular in European gardens, among these is *Trifolium rubens*, which we tried this year for the first time, and find a decidedly interesting and somewhat showy plant. The trouble with the so-called perennial clovers is their short duration; especially if allowed to bear seed, the plant becomes exhausted, and behaves more like a biennial than a perennial; the duration of this remains to be tested. It is a rather robust species, growing 12 to 18 inches high, having leaves with three large thick, oval-oblong leaflets, the upper being sessile. The heads of flowers are elongated, cylindrical, tapering above; the individual flowers large for the genus, and of a carmine or purplish red color; the heads are either solitary or produced in pairs, and are about 4 inches long. Each calyx has one of its five teeth much prolonged, and very hairy, and after the flowers have fallen, give to the spike a soft downy appearance, much like that of the little Rabbit's-foot or Pussy-Clover, so common in some places by the road-side, and in dry, sterile soils. The engraving shows the upper portion of the plant somewhat reduced in size. In Europe, the plant remains a long while in flower, but we have yet to see how it endures our hot summers. The botanical name, *Trifolium rubens*, would translate into Red Clover, but that name being in general use for another species, we will get over the difficulty by calling this one the Garden Red Clover.

THE GARDEN RED CLOVER.—(*Trifolium rubens.*)

The Tartarian Honeysuckle.

In making up a list of desirable ornamental shrubs, however few in number, we should be obliged to include the Tartarian Honeysuckle, though we are not prepared to agree with a recent writer who states, that if restricted to only one single shrub, this would be his choice. There are some shrubs, that step at once into the front rank, from which position no after comers can depose them; this is the case with the plant under notice, which, though introduced over a century ago, has held its place in the esteem of all lovers of good plants, and it will no doubt retain it for a century to come. The Honeysuckle genus, *Lonicera*, is divided into two very distinct sections, the plants in which some botanists have considered as sufficiently unlike to be regarded as two different genera. The first section, (genus *Caprifolium* of some), includes climbing plants, with the flowers in heads or whorls at the ends of the branches; our well-known Trumpet Honeysuckle, the Belgian or Dutch Honeysuckles, and others are examples of this section. The second section (formerly *Xylosteum*), includes both climbing and erect species, but the flowers are in pairs in the axils of the leaves; the Japan or Chinese Honeysuckles, of which there are several varieties with different names (*L. flexuosa*, *L. brachypoda*, etc.), are examples of the climbing species of this section, while of the erect species, the most familiar is the Tartarian, *Lonicera Tartarica*. As its name would indicate, this species was first known as a native of Tartary, but it is common in Russia proper and in Siberia. It is usually from 4 to 6 feet high, but old and well-grown specimens reach 10 feet, and if allowed room for development, will be as broad as, if not broader than tall. It is a plant that should not be put into a shrubbery, where it will be crowded by others, but allowed sufficient room, where it will present a regular ovoid outline, and be clothed with foliage from the very base. The small ovate-heart-shaped leaves are opposite, and in the axil of each is a short flower-stalk bearing the flowers, which project beyond the leaves. The engraving, of a small twig of the natural size, gives the shape of the leaves and flowers. At first the berries of the two flowers are quite distinct, but as they ripen they grow together at the base. In the ordinary form of the shrub, the flowers are pinkish or rose-colored, and the berries of a dark-red, but there are several varieties, which are usually kept in the nurseries. The most common variety is var. *albiflora* (or *alba*,) in which the flowers and the fruit are both white; another, var. *lutea*, has yellow leaves and berries. By far the finest of the Tartarian Honeysuckles is one we received several years ago from Ellwanger & Barry as var. *grandifolia*, a name which we do not find in any of the books, and which, from the description, we take to be the same as the French works have as var. *tricolor*. At all events it is a most charming

TARTARIAN HONEYSUCKLE.—(*Lonicera Tartarica*, var.)

shrub, and it is from this variety that the specimen was taken for the engraving. The flowers are somewhat larger than in the ordinary form, and are handsomely variegated with white and red stripes.

Unlike many shrubs, which are only of interest during the short time they are in flower, this Honeysuckle is pleasing during the whole season; the leaves appear early, and last until frost, being all the season of a good green, and where there no flowers at all, the dense and shapely mass of foliage would be worth growing the plant for. It flowers with us about the end of May, and at that time is superlatively beautiful; but when the flowers are off, the shrub does not cease its well doing, for after a while the berries ripen, and it presents another phase of attractiveness. The name *Xylosteum*, which has been given to the species of this section, is from the Greek words for wood and bone, one of the species having hard and bone-like wood; the wood of the Tartarian species is hard, handsomely veined, and is said to make fine walking-sticks.

Glazed Flower Pots for House Plants.

BY PETER HENDERSON.

A writer in a contemporary magazine, says that she has grown house-plants for twenty years in glazed pots, and found them to thrive better than plants do in the porous, unglazed pots. No doubt she is correct, if the atmosphere in which the plants are placed is as dry as that usually found in sitting rooms. The glazed surface will prevent the dry air from penetrating to the soil, much better than would the usual porous pot that we florists, who grow our plants in the greenhouses, find indispensable. There we have an atmosphere charged with moisture, which would soon be destructive to the plants, if grown in glazed pots, or such as were not porous. For the same reason, wooden boxes, or wooden flower pots, are better suited for plants grown in the dry atmosphere of an ordinary dwelling, than the pots usually used by florists. Of course, in any case, care must be used *never to water a plant until it is dry*, and then water freely. The "Adjustable Plant-Box," described in the May number of the *American Agriculturist*, would seem to be just the thing required for nearly all kinds of plants of medium size. The wooden sides will resist the dry air of a sitting-room, just as effectually as the glazed, or painted, pottery ware will, and at the same time the means of drainage from overwatering will be far better. We find, (in correspondence with our customers), one great hindrance to growing flowers in rooms, particularly in the South and Southwestern States, is the difficulty in procuring suitable vessels to plant them in. This new flower-box, if it can be sold at a reasonable price, will be certain to have a large sale, for its lightness, compared with the clay pots of the same capacity, will enable it to be shipped at one-fourth the cost, and also with perfect safety from the breakage, which is another serious detriment in the transportation of the earthen-ware flower pot.

THE WALKING STICK AGAIN.—In June last, we gave an account of a remarkable visitation of myriads of the insect known as the Walking Stick (*Spectrum femoratum*) in Yates Co., N. Y., and asked for information as to the appearance elsewhere. The following, from Mr. E. H. Conklin, Cumberland Co., Pa., is the first response, which, we hope, may call out others. Mr. C. says: "This insect, though not at all common, and seldom numerous, has made its annual appearance in our peach orchards for 40 years, and only once in this time have they been so numerous as to be injurious. In this instance, which was about 10 years ago, these insects denuded a row of Locust trees, that formed a shelter on the N. W. side of a peach orchard. For half a dozen rods from this Locust row, the peach trees were also stripped of their leaves. Previous to this time, we never saw them on any other trees except the peach. As to color, some are light-green and others brown, amongst male and female. The female has a much heavier body than the male."

Notes from the Pines.

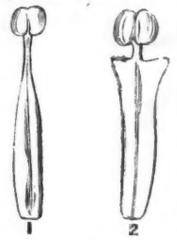
Last year I stated that a very fine specimen of

The Smoke Tree, (*Rhus Cotinus*),

often incorrectly and unnecessarily called "Purple Fringe" in the nurseries, had the year before fairly bloomed itself to death—if we can properly call the mass of little hairy stalks the bloom. At all events the "smoke" was so copious as to conceal every leaf, and the foliage being shut our from the light and air, all the top of the tree died. There being some life in the trunk, it was cut off to leave a clear stump about 4 feet high; last year this pushed numerous small branches, and this year these flowered, and now the whole is completely enveloped in "smoke," from the ground upwards, and makes the finest specimen I have yet seen. Still, there is the same difficulty as before, the foliage is all hidden, and I think that to save the life of the tree, it will be necessary to cut away a good share of the ornamental fuzz.

The Various Deutzias

are among my favorite flowering shrubs; I have endeavored to procure all the species and varieties offered by our nurserymen, and the labels said that I had them all. I noticed that there was a close similarity between my *Deutzia scabra* and *D. crenata*, but gave them no close examintaion, until a note in Gray's "Garden Botany," to the effect that *D. crenata* was generally cultivated as *D. scabra*, induced me to look at them more closely, when I found that all the difference between the two was in the labels, and that I had no *D. scabra*. I then ordered from some half a dozen different nurseries, plants of *D. scabra*; they came into bloom this spring, and every one is *D. crenata*. It is very doubtful if *D. scabra* is in any of our nurseries; at any rate, if the real thing is to be had, I should like to know it. According to the engravings in Siebold and Zuccarini's "Flora of Japan," *D. scabra* has narrower and much rougher leaves than *D. crenata*, but the marked distinction is in the stamens; in the former (*scabra*) the *filament*, or stalk portion of the stamen, is broadest below, and tapers upwards, while in the other the filament is broadest above, with two blunt lobes just below the anther. I send a tracing from the work referred to, which will enable any one to see the difference. Figure 1 is a stamen of *D. scabra*, and figure 2 that of *D. crenata*, both magnified. This is by no means the only case in which a plant has been sent out year after year under a wrong name, and cultivators abroad frequently complain that it is impossible to find certain plants in the trade, as some other has been, no doubt accidentally, substituted, and the error propagated not only from nursery to nursery, but from one country to another. Now that Deutzias are the topic, let me remind you that too much can not be said in favor of the



STAMENS.

Slender Deutzia, (*Deutzia gracilis*),

as it is far from being generally known. It is seldom higher than two feet, forms a handsome clump with gracefully recurved branches, and in June is covered with flowers as white as snow-flakes. I sometimes think if this, and many other choice shrubs, were fitted with some easy-going English name, it would do much to popularize them. It is a choice shrub for any garden, and is admirably suited for cemetery planting. Our florists know its value for forcing, and it is one of the hardy things that may be forced without a greenhouse. When frost has checked the growth, the plants may be taken up and potted; keep them in a cool cellar or frame until February, then bring them to a sunny window, and they will come forward, if not so rapidly as in a greenhouse, quite satisfactorily. It is easily propagated from cuttings, or from the suckers which it produces in abundance.

The Cultivation of Native Plants

has long been a hobby with me. It is popularly supposed that merely bringing wild plants under cultivation, is sufficient to produce double flowers, and all those improvements which distinguish our garden plants. Of course no marked deviation from the wild type can (as a general thing) be produced and fixed, except by a long succession of reproductions by seed, and the selection of such seedlings to breed from as show a departure from the type. Still, when a plant is taken from the woods or fields to the garden, there is to a certain extent a change in the individual plant. It is just such a change as we often see in garden plants; if we remove a plant from a poor, sterile soil to a rich one, or if we turn a pinched and pot-bound plant into the open ground, in both cases the individual shows a great improvement, but that improvement is within certain limits; when the plant reaches its full development, there it stops. The same occurs with wild plants; we take them often from a poor soil to a rich one, and what is of more importance, we give each abundant room; its roots have not to contend (so to speak) for food with the roots of a dozen other plants, each striving as eagerly as itself in "the struggle for existence;" as a consequence, the individual thus favored developes to the extent of its capabilities, and often astonishes those who have only known it under adverse conditions. I was led to these remarks by some clumps of the

Bird-Foot Violet, (*Viola pedata*),

the largest-flowered and showiest of all our native violets—at least of the Eastern States. I recollect seeing, some years ago, in one of the French or Belgian journals, a colored plate of this species, and being much amused at the extent to which the artist had allowed his imagination play in his picture of our beautiful little native violet. But I had not then cultivated it, and were I to see the picture now, I should probably find that it did not do the plant justice. Always attractive for its neat, handsomely cut leaves, and its large lilac-purple flowers, held well above them on strong stalks, in the garden these characters are all the more conspicuous; the plant is much larger in leaves and flowers, without losing that compactness, and air of neatness, which is one of its most pleasing qualities. It not only blooms much more abundantly, but the bloom continues much longer than in the wild plant. I have not had a chance to observe the ordinary form through the whole season, but the white variety (not rare in some localities) last summer proved a continuous bloomer. Whatever improvement may be produced through systematic raising from seeds, or by crossing with other species, this native violet as it is, if given a fair chance in the garden, is worthy of a place in even the choicest collection of hardy plants. Lovers of plants who have the opportunity to cultivate the most promising native species, whether shrubs or herbs, and do not improve it, deprive themselves of what seems to me one of the greatest pleasures of flower gardening. ....Especial pains had been taken with our Tomatoes this year, and never were a finer set of vigorous stocky plants set out, and when three rows, about 200 feet long each, were set, they were pleasant to look upon and full of promise of a splendid crop. One or two mornings after they were set, the man came in and reported that a majority of our fine plants were cut off, and he knew that it was

The Work of the Cut-worm.

It is very common that *the* cut-worm is mentioned while in fact there are many. However, one species effectually did the business for our tomatoes; fortunately we had a plenty more plants, though "the pick" of them had been put out at the first planting. About three-fourths needed re-setting, and to avoid more of the same trouble, directions were given to wrap the stem of each plant with a strip of stiff and smooth brown paper, about 3 inches wide and long enough to make two or three turns around the stalk. This was put around each stem, and in setting the lower edge of the paper was covered with earth, for a double purpose—to shut off access to the plant, and to hold the paper in place. After this only one plant was found to be injured and this was sufficient to show the necessity for care in the matter; the lower edge of the paper was not well secured by the soil, and the free edge was blown by the wind sufficiently to open a passage

for the "worm," which was not slow to take advantage of it. So far as these plants went, the paper guard was a perfect preventive. Sometimes

Cabbages Suffer Severely

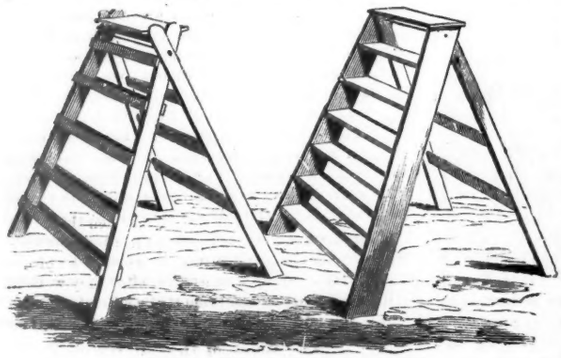
from cut-worms, and I have known them, at the West, to be protected, not by the use of paper, but a maple-leaf was used in the same way; there is no special virtue in the maple, but it was of the most suitable shape of any leaf at hand. The name cut-worm is rather loosely used, it being sometimes applied to the wire-worms, and not rarely to the white grub, the larva of the May-beetle, which is as destructive below ground as the proper cut-worms are upon the surface. (See page 299.)

Peach Harvest—Picking and Packing.

While in some localities the dropping of the partly grown fruit has diminished the crop, this has not been general, and the prospect on the whole is that the harvest, in the Atlantic districts, will be a most abundant one. There is no crop that requires so much care in preparing for market as this; the returns, in ordinary seasons, depend upon the condition in which the fruit reaches the dealer, and in years of plenty, when the market is full, the condition of the fruit is of still more importance, and it becomes the grower to take every possible precaution that the fruit shall reach its destination in the proper condition. Experienced peach growers need not be told these things, but there will be many who this season send their first crop to market, and a few hints may be of use to them. We saw not long ago a picture representing the peach harvest on an estate in Georgia, which was useful in showing what not to do. A number of stalwart negroes were up in the trees picking the fruit. If one cares for the future of his orchard nothing like this will be permitted; the limbs already burdened with more than they should carry, are very easily broken, while hob-nailed shoes will make bad wounds on the bark, and cause gumming.

Ladders.

The owner should provide an abundance of ladders for his pickers; they are usually made like an ordinary step-ladder, and very strong, usually about 10 ft. high, and with a board at the top to serve as a shelf on which to rest the basket; to keep it



LADDERS USED IN PICKING PEACHES.

steady, the ladder is broader at the bottom than at the top. That at the right hand of the engraving —which is borrowed from Fulton's excellent "Peach Culturist"—shows the usual form. These, and everything else required for the harvest, should have been prepared well in advance, but if one has not provided ladders enough he can knock together some that will serve, from ordinary materials. The ladder shown at the left hand is one of this kind; to make it requires four pieces of shingling lath; to two of these pieces, strips of the same material are nailed in pairs opposite each other, to serve as steps. The other pair of long strips are to serve as a support to the ladder, and are furnished with cross-pieces to strengthen them; a connecting rod, with a head at one end and screw with nut at the other, can be made by any blacksmith, and is the only part of the ladder that can not be made on the place. The engraving shows the manner of building it, including the top-board. Much fruit may be picked by standing on the ground, or by the aid of a box, and with a ladder and the aid of a crooked stick every part of the tree may be reached.

Pickers and Picking.

Picking requires pickers, and here is one of the grower's difficulties; he can hire hands, but not always brains, and to pick properly requires judgment and thought. Tramps and "bummers" from the cities make their way into the peach districts at harvest time, and the grower is often obliged to take up with a very rough lot; he is fortunate who can command the services of experienced pickers who should be engaged well beforehand. The condition of the peach when it is in a proper state to pick, can only be learned by practice. It must be mature, else it will never come into eating condition, but it must not be over-ripe. A peach that is fully ripe and in eating condition, is too far gone to send to market, and a single peach of this kind in a basket will become bruised and crushed and spoil the looks of the whole. Where skilled pickers can be had, it is customary to pick directly into the baskets which are sent off without overhauling.

Assorting the Fruit.

But it is safer to have the fruit culled by persons more skilled than the pickers. Temporary tables, of sufficient size, are put up in a shady place, or in large orchards there is a packing house for the purpose, and the baskets as they are brought in from the pickers are turned out upon the tables. Here the cullers re-pack, handling every peach; two, and sometimes three grades are made for market, and all that are too small or imperfect, and especially all that are over-ripe, are thrown aside. The distance from market, or rather the time required for transportation, has to be taken into account in deciding upon the proper condition of ripeness in which it will be safe to send the fruit; besides some varieties ripen up more rapidly than others, points which, with others, require no little judgment on the part of the grower. His aim is, to so pack the fruit that it will open sound and fresh, when it reaches the consignee, and yet not so immature that it will not ripen up and become mellow when it finally reaches the hands of the consumer. Of course the different qualities should be marked, firsts, seconds, or thirds; it is the custom to "twig" extra fruit, by running through the cover of the basket a small peach tree twig, with the leaves upon it.

Baskets and Crates.

There has been a great improvement in baskets of late years, and a neat, clean basket helps to sell the contents. The standard size is 5 half-pecks, or $\frac{5}{8}$ of a bushel, this size having been adopted by the "Fruit Grower's Association" of the peach districts of Delaware and Maryland. In some Western localities a smaller basket is used, and in Nov., 1875, we figured a neat peck-basket, used by the Michigan growers; this was very generally used in New York last year, but mainly by retailers, who transferred the fruit from the large baskets, or crates, to these baskets, which buyers could easily carry. Crates are coming more into use each year, and especially for long distances, are preferable to baskets; fruit can not be shown in them so well as in baskets, but they preserve the fruit in much better condition. The standard crate of the Peninsula, is made of two ends and a middle piece, 7¼ x 14 inches, of ⅜-inch stuff; each side of four pieces 2¼ in. wide, and 23½ in. long; the top and bottom each of one piece 6½ wide, and 23½ inches long; the side, and top, and bottom pieces, are ⅜-inch stuff, and well secured to the end and middle pieces by nailing; the spaces between the side slats, and at each side of the top and bottom, allow of abundant ventilation. Sometimes the top and bottom are also of several slats. If the crates are to go a long distance, a lath or other strip should be nailed around each end of the crates, so that when packed upon each other, there will be an air-space between. It is advisable to bevel the inside edges of the slats, to avoid bruising the fruit. In filling the crates, care should be taken that they are so well filled that the fruit can not move and get injured; about half fill the crate, shake the fruit down, then fill it up with the fruit so far above the edge, that it will require some pressure to bring the cover down to its place.

Facing, Topping, or Plating.

Those who buy small baskets of fruit at some retail stores and stands, know that the dealers well understand the art of "topping" the baskets, and find that all of the fine fruit is in a layer at the top, while the rest is of inferior quality; indeed, some of them are given to "bottoming" too, which they do by placing an abundance of paper in the bottom. "Topping," or "plating," is now rarely done by the growers, as those regularly in the business know the value of a reputation for honest packing. But deception of this kind is different from "facing," which is legitimate, and only makes the article look at its best; the fruit being of even quality all through, facing is done by regularly placing and rounding up the top layer, carefully turning each peach so that its "sunny side," or colored cheek, will be uppermost—a little matter, but it pays.

Marking.

Plain and distinct marking will prevent mistakes, and a grower should have stencil plates for this purpose. With baskets, the name of the commission house is marked on the cloth cover, and the owner's name permanently on the side of the basket; also mark quality plainly. Though crates are never returned, it is important that the grower's name should be on these also, for sake of identification. Always notify the consignee well in advance, by mail, or by telegraph, of the whole number of baskets or crates, and how many of each quality.

THE HOUSEHOLD.

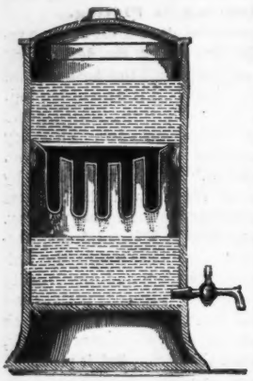
☞ *For other Household Items see "Basket" pages.*

A Vegetable Washing Machine.

In the Oneida Community, a large number of people are brought together to form one extensive family, and their kitchen operations are consequently on a correspondingly large scale. Many of the minor operations in domestic matters, which, when performed in an ordinary family seem to require but little time and labor, when multiplied to meet the wants of a family as large as that of the Community, become onerous, and time consuming. Washing potatoes and other vegetables preparatory to cooking is one of these, and it is one in which, where much is to be done, the cook will gladly welcome any aid. Among the other labor-saving machines devised by some inventive member of the Community, is a machine for washing potatoes and other vegetables, of which we give an engraving on the next page from a photograph furnished by J. Leonard, of the Community. It consists of a slatted cylindrical crate, provided with a crank, and so arranged that it may be revolved in water contained in the square tub, or it may be lifted quite out of the water by means of the handles of the frame in which it is hung, and carried over to discharge its contents into the wooden funnel, seen at the side of the tub, from which they fall into a basket or whatever may be placed beneath, to receive them. The potatoes or other vegetables are placed in the cylinder through a door not shown in the engraving; they are revolved in the water for about three minutes, when by a single lift of the crate by the handles, they are dumped out perfectly clean. Mr. L. states that though the idea was original with the inventor, they found out afterward that a similar machine had been in use for many years in starch factories. In large families, schools, or other institutions where cooking is done on a liberal scale, a machine of this kind will be found to save a great deal of unpleasant labor.

Filter for Water.

A very readily made filter for home use may be made in a few minutes, with very easily procured materials. There is first needed a tin pail, divided into two parts, the upper one slipping into the other. The upper one contains the water to be filtered. Near the bottom of this is fixed a peculiar shaped bag, made of stout cotton cloth, doubled if need be, to prevent the charcoal from passing through with the water. This bag is very shallow at the top, but has several long pockets, as shown in the engraving. These are filled with charcoal, both fine and coarse, and the top of the bag is also covered with a layer about an inch thick. There is a cover made to the bag, which stretches across the pail, above the upper layer of charcoal. The bag should be fitted very tightly to the sides of the pail, and an elastic hoop may be used to press it against the sides. When water is poured into the upper pail, it filters through the charcoal, and is rendered free from many unseen impurities. There are many districts in which at this season water is scarce and of inferior quality. In such places no water should be drank, unless it is first filtered or boiled. Impure water is perhaps the most prolific source of those diseases, known as summer complaints, and is most dangerous when the hot weather favors the growth of vegetable and animal bodies, too minute to be seen without a microspcope.



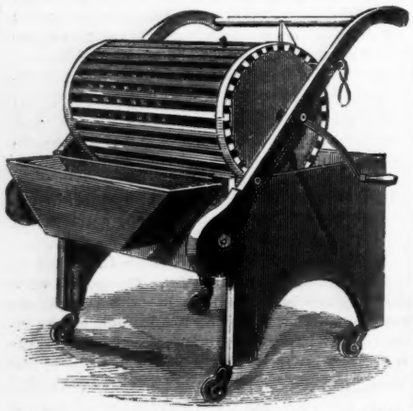
A FILTER FOR WATER.

Home Topics.

BY FAITH ROCHESTER.

Husbands and Housework.

These are indeed hard times. None but those upon whom the woe has fallen, can appreciate the words "out of work." The sight of it is enough



THE ONEIDA VEGETABLE WASHER.—(*See page* 303.)

to set any one who believes in "cause and effect," to thinking about the cause and the cure for misery of this kind. But a dissertation upon that theme lies outside the province of the Household columns. It has, however, occurred to me many times, that men who are out of work, are by no means justified in sitting idly about their premises, or lounging in adjacent stores and groceries, when their wives are overburdened with the cares and labors of the family. Every household needs two heads, the father and the mother, a "united head." But when a father is so situated that he is unable to contribute to the family support, he must reflect that he becomes a positive burden to the family, unless he can make himself useful to it. The class of men likely to get out of work, usually have hard-working wives, who need holidays quite as much as their husbands do. Sometimes these women not only do the family housework and washing and child-training, but also add to the family finances by sewing, washing, writing, or other means. And there are husbands of such hard-working women, who feel (or seem to feel) that it is only right and proper that they should lounge about, reading the paper, playing with the children, chatting with the neighbors, while their wives have one unceasing round of household labor. The fact is, they dislike "menial" tasks, and they forget the feelings they professed as lovers, toward the women now their wives, and allow those whom they once aspired to protect and cherish, to perform for their able-bodied husbands the most "menial" services. They don't think a word about it; but they ought to think. They fall in with the ordinary drift of things, and only attempt to meet the requirements of public opinion in the locality where they dwell. I remember that, when I was teaching in Pennsylvania, Mr. Smith was laughed about because he wheeled the baby carriage when he went out walking with his wife and child, instead of allowing his wife to do that part, besides taking care of her skirts. It would have been considered quite enough for him to swing his cane beside her, prepared most chivalrously to defend her in case of attack—"sword arm free," you know. Like the savages, who can not stoop to "menial" offices, because they must keep always alert and vigorous for the chase, some of these noble men and brethren must be saved from all the distracting cares and petty concerns of the family, that their superior powers may be in readiness for doing big things when the time for doing big things arrives.

I believe in a division of labor; and I do not subscribe to a rather common notion among some reformers, that husbands and wives would always be happier if they worked side by side in the same field; and I sympathize somewhat with women who say that they shouldn't want a husband "always round under foot!" But I do say that a hard-working woman never admires her husband more, than when having no work to do in his own field, he comes cheerfully over into her field, and bends his stronger shoulders to help her bear her burdens, that she may share in his leisure.

Don't I know? Didn't I see a stalwart laddie, "rising of" forty, working in his shirt sleeves and an apron, over my kneading-board, soon after sunrise yesterday? I can testify without any mental reservation, that the bread on our table to-day is of excellent quality. It is enough for one woman to get breakfast, skim and strain milk, put up the dinners for school, and dress the baby, without having also to knead bread, all before breakfast; and so it is lucky for her if the "gude man," off work for a few days, stands ready to "lend a hand."

Men, generally, have no idea how much they can do to help, if they set about it. They have an uneasy feeling sometimes, that they ought to take hold somewhere, but they don't know how to begin. I said to a man with no particular work to do, who sorrowfully told me of his wife's ill-health and hard work, "Of course you help her do the washing."—"Oh yes!" he answered, "I bring in the wood, and get all of the water for her."—And it never occurred to him that Justice could ask more of him, that noble creature, a man! He to bend over the wash-tub, applying his superior mind to the discovery of grease spots, and his manly strength to the rectification of soiled garments? No doubt the kind hearted fellow did sometimes go farther, and graciously dandle his own babe on his knee, when it was sufficiently amiable to please him, in the idea that by thus tending baby, he was helping his wife. He, the strong, thus choosing the easier work, in order to give her, the weak, a chance to do the harder task unhindered. This sort of thing is extremely common in families, and women who are of the angelic type, never feel themselves defrauded of their rights, but continue to smile as the law directs. Others "fret inwardly," or take refuge in sarcasms. Frankness is better.

Say to this reasonable but thoughtless husband of yours, something like this: "Now just look at it, you and I are the heads of this family. I certainly am no more responsible than you are for the number of mouths to feed and bodies to be clothed, or for the daily and yearly round of work that must be done here. I am willing to work as hard as you do for the prosperity of the family, but I think it altogether fair that you should work as hard as I do. Now, while you can not work at your own proper business, (and sometimes this sort of thing goes on for weeks and months at a time), or get any paying work to do, suppose we make a division of labor right here in the family. You can do all the sweepings, you can knead the bread,"—and so on, consulting his tastes and the amount of "faculty" or "knack" which he is likely to bring into the partnership. If your sleep is broken by care of children, and if your nerves are overstrained by constant and conflicting cares and anxieties, your husband ought to know it, and give sympathy if he can not give help, but it is a pity if you have to tell him the facts and beg for aid.

While I write, I remember that there are selfish wives, who would shirk all care and toil, preferring to live like the lilies of the field, whatever burdens may fall upon their husbands, and I wish to give no countenance to such. I do not like to think of marriage as a "partnership," but it should not fall behind a business union in the essentials of justice.

Bread Making.

For a long time nothing has been said in the Household-columns upon this all-important subject. Yet recruits are all the time coming forward, who wish to be told minutely just how to make bread, what yeast to use, how, and when, and where to set the "sponge," or bread batter, for its first rising, when, and how long to knead the dough, when, and how to make and bake the loaves.

It seems to the uninitiated a very formidable undertaking, requiring peculiar judgment and discretion; yet it cannot be very difficult to learn, else how does it happen that this little girl near me, just past her eighth birth-day, has made ten or a dozen goodly batches of bread within a half year, and never a sour, or heavy, or tough loaf in all that she has made. The manipulation was all her own, but mother's "judgment" was always at hand and freely used. The first sponge was set in a pint basin, but every one since has been sufficient for at least three common bread-tin loaves. No Kindergartening at our house has proved more entertaining, and perhaps none more profitable than bread-making. At least one boy has learned the art as a pastime, and whatever may be his future lot, need never starve for good, light bread, when proper materials can be obtained. It is really help, too, for a mother, when her children, with clean hands and cheerful hearts, work at the bread dough, with a wholesome ambition to produce the sweetest, and lightest, and finest possible loaves of bread.

There are many ways of making good yeast bread. The very best, in my opinion, is mixed with fresh, sweet milk. Many consider sweet skimmed milk with a little butter melted in it, just about as good, but if you add the butter, there is no economy in substituting skimmed milk for fresh. The far-famed Parker House bread is made, I am told, of simply yeast, flour, and water, and I am very certain that delicious bread, sweet, light, and tender, can be made from these three things alone, when they are of good quality, and carefully and skillfully used. This care and skill any well-disposed child can learn, so no housekeeper must consider it beyond her attainments.

Many good recipes for yeast are given in books and papers, and every neighborhood has housekeepers who make excellent yeast. I always use, of late, some form of dry yeast, such as any grocery store will furnish. It costs no more than home-made yeast, and saves a deal of care in either hot or freezing weather, requiring only a dry place for storage. It is quite as good as jug yeast.

It is usually most convenient to begin the bread-making, or "set the sponge," at night, and so get the baking done early the next day, but it can all be done in the same day, if desired, by beginning

before breakfast. This brings the baking late in the day, and most of us do not like it. At night, or in the evening, we make a soft batter of warm water and flour and yeast, the quantity of each depending upon the number of loaves desired. The proportions are generally the same, though no precise rule can be given, as flour and yeast differ in their properties.

Miss Beecher says that it takes about a quart of flour to make each loaf, and for four loaves a quart of wetting. But loaves vary in size. For a baking of this size, you need about three-fourths of a cake of good dry yeast in summer, in winter a whole cake. This yeast must be soaked in warm water half an hour or less before using. The yeast will not work if scalded. A gill of lively, soft, or baker's yeast, answers for the same sized baking. Take a portion of your flour, (say two quarts), and (if you do as I do) pour half of your wetting into it boiling hot, only scalding about half of the flour you use in the sponge. Use the other half of the wetting lukewarm, and see that the batter is below the scalding point when you add the yeast. In summer you may make the sponge at a lower temperature than in winter, but it should never be cold. Make it of such thickness that it will not separate or become watery over the top, but thin enough to stir and pour easily. Set in a warm place, covered loosely—wrapped up warm in winter.

In a warm kitchen this sponge rises in from three to five hours; if the materials are good, it seldom sours during the night, but must be looked after very early, and if light, must be kneaded without delay. Some housekeepers stir dissolved soda into it, always, at this point, whether it is sour or not, but this is sheer folly. If the flour and yeast are good, it is very seldom that a good housekeeper has occasion to put any soda into her bread. If the bread smells sour, (not simply yeasty), or tastes sour, put in dissolved soda in the proportion of a teaspoonful to a quart of wetting used in the sponge. Dissolve the soda in warm water or sweet milk, (and I add to it two heaping teaspoonfuls of sugar), and stir it into the sponge before kneading. Stir in flour until your batter is too stiff for your strong spoon, then begin to work with your hands, keeping flour between your hands and the soft dough, and always between the dough and board. As soon as the bread is stiff enough to knead without sticking, cease to work in flour, but knead with as little flour as possible upon the board, and work it hard with the hands for at least half an hour. The "Parker House" baker says he kneads two hours, but of course he makes larger "batches." Put the dough back into the pan or tray, and keep it warm.

The dough should now rise until it doubles in size. It must rise enough, or it will not be light and elastic in texture. It must not rise too much, or it will lose the natural sweetness of the wheat, and about all that one can say here is, "cultivate judgment." If, at this stage the bread turns sour in any degree, it is still possible to neutralize the acidity by the use of soda, and this is the best way to do it: mix soda and dry flour together, and knead them into your loaves very thoroughly. The dough requires a very thorough kneading, without more flour, when made into loaves, in order to secure a uniform texture. If you plan four loaves, you may knead half of it for a few minutes, then work the other half as long, and then divide into separate loaves, and knead each one well before putting it into the well-buttered tins. If the dough is sour, half a teaspoonful of soda for each loaf should be mixed with a little flour and kneaded in. Though the bread may be nice, I never feel that I have been very successful when I have had to use soda. The loaves should be set in a warm place, and allowed to rise light, or double in size, before they go into the oven—not too light, as they are pretty sure to rise a little more after they go into the oven, unless the oven is too hot for bread. Prick the loaves on the top with a fork or knife, when light, before baking, to prevent a loose upper crust. Bake steadily for an hour or a little longer, according to the size of the loaves.

Repairing Bed Comforters.

Complaint is made of our "heavy" cotton comforters. Wherefore "heavy"? They are not so when new, but the cotton becomes packed by pressure, and especially by washing. Comforters, which are used as coverings in winter, should not be used as mattresses over straw-beds in summer. This, of course, makes them hard and heavy. Before putting them away for the summer, they need some cleansing, but, unless the covering is really soiled, the sunshine and fresh air will freshen and sweeten them properly. Hang them out during the whole of at least one sunny day, then put them away, not packing them too closely. If they must be washed, untack them and wash only the covering, laying the cotton out in the hot sunshine for a day or more, then tacking the whole together as before.

Old Bed Quilts.

These must be washed when much soiled, and a washing machine and wringer seem almost indispensable. Plenty of suds should be used, and a thorough rinsing be given. If they happen to hang through a good pouring rain, it will do no harm. They can be patched up, when very badly worn out, more easily than some imagine. If pieced in large blocks, they can be patched with dark or light, according to the shade of the worn portions, so as to look almost as good as new. Of course they need not be ironed.

To Wash Blankets Nicely.

I have seen various directions for this work, but a few things seem essential in every case: to avoid hard water and resinous soaps, to wring without twisting (*i. e.*, with a wringer), or not to wring at all, to use water of the same temperature all through, or to increase in heat during the changes, not to rub the soap upon the flannel, but mix it with the water. Flannel is of so porous texture, that it is easily cleansed in good suds without much rubbing. Hard rubbing tends to "full" the cloth, and to rinse in cold water flannel that has been washed in warm water, is a sure way to shrink and harden it. From cold to warm, but never from warm to cold. I have seen the direction to rinse flannels in soapy water, but I am sure there is no value in this. The clean, warm rinsing water is sure to be soapy enough, if good suds have been used in the washing. One suds or two may be used, according to the degree to which the flannels have been soiled. When they have been rinsed, two should take them, one at each end, and shake and snap them well, to make them more soft and fuzzy.

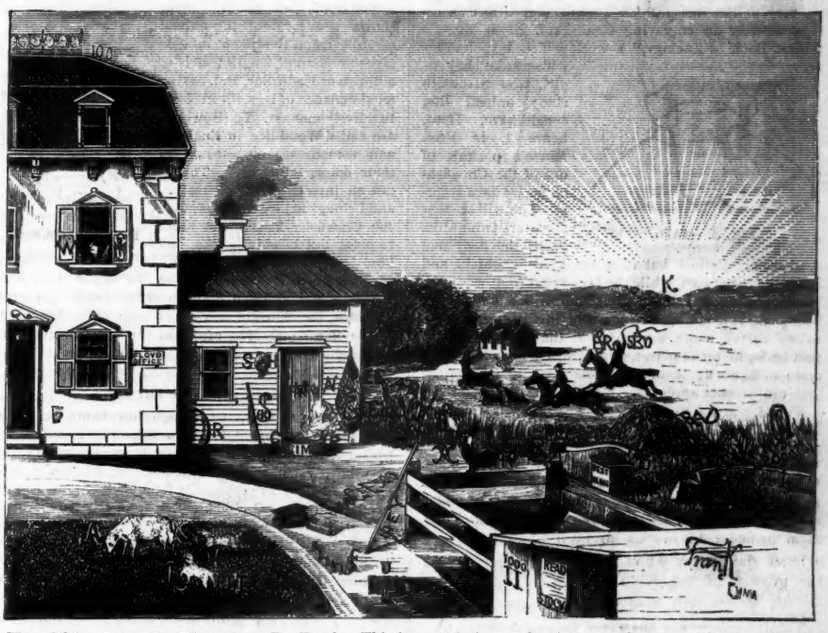
BOYS & GIRLS' COLUMNS.

The Doctor's Correspondence.

I do not like to begin the answers to my young friends with a lecture—perhaps you will think it is a scolding—but we had better have the disagreeable part first, and there is such frequent cause for it, that I would put it where every one of you will see it. I wish that

EVERY BOY AND GIRL,

of the whole *American Agriculturist* family would recollect, that it is regarded as decidedly improper to send what is called an *anonymous*, (that is, nameless), letter to any one. It is often done through thoughtlessness—as in the case of "Boy of 12," but is nevertheless very impolite. If you have anything to say, to which you are ashamed to put your name—don't write it. But whenever you do write a letter to any one—always be careful to put your address in full, and your name in full. I wish every one of my young friends to begin now, and make it a *rule through life*, to always sign your name to every letter, and be equally careful to give your address, Post Office, County, and State. One thing be sure of—never write anything to any one that you will be ashamed to see again, with your name to it. * * * You will recollect that in last June's "Correspondence" I told you about



No. 461. Puzzle Picture.—By Frank.—This is a patriotic puzzle picture, and was sent by Aunt Sue to appear in July, so that you could, very properly, let the making of it out come in as a part of your 4th of July celebration. While it would have been more appropriate for July 4th, it is not out of place on August 4th, or any other day of that or any other month, as you are to find in the picture the names of 53 men, and men too, whose memory should be honored by all Americans for all time. The answers, mind, are to go to Aunt Sue.

AN INSECT THAT BUILDS A STONE HOUSE,

a Caddis-worm, the larva of one of the Caddis-flies, that makes a neat little case of pebbles, and gave an engraving of the animal and its case. As the insects were all dead when they reached me, having dried in the box, I asked for some more, to be sent packed in moss, in a tin box. In due time, the box with a nice lot of Caddis-worms came; the insects were all alive, but every one had left its stone house, and was crawling among the moss. I put them in water, hoping that some of them would go back to their homes, but not one would do so, nor would they make new ones, though I gave them building materials. I suppose that the constant jarring they had on the railroad frightened them "out of house and home"; at any rate, I was quite sorry, as I wished to watch their ways and learn more about them, that I might tell you. It was very kind of Mr. Albert B. Castle, of Frederick, Md., to be at the trouble of getting this second lot, and it was no fault of his that they did not behave themselves properly .. Here is a letter from "W. I. N.," Hightstown, N. J., who wishes to know about

"A FRESH-WATER LOBSTER,"

which he finds in the streams in his neighborhood. He has one that is 3⅛ inches long in his aquarium, and thinks that, except in size, it is quite like the common lobster, as it moves in the same manner, and snaps at objects with its claws just as a lobster does. The common name for our friend's "Fresh-water Lobster" is the Crawfish, and while it much resembles the Lobster, naturalists find abundant differences between the two, so

much so, that they give them different names; the Lobster being called *Homarus*, and the Crawfish *Astacus*. "W. I. N." is not the only one who has asked about the animal, which is found in most streams, and is especially abundant in the South and West. This, the Crabs, the Lobster, the Shrimps, and others, including some very small animals, called "Sand-fleas," all belong to the

CLASS OF CRUSTACEANS,

so-called, because they have a *crusta*, or outside crust, or shell. Some of them may be mistaken for insects, to which they are closely related; they differ from insects in the number of divisions of the body, and number of legs; the true insects have six legs, while these have 10 or more, and breathe by gills; so you will see that the crustaceans are very unlike insects. To describe our Crawfish, we must borrow an engraving from Prof. E. S. Morse's "First Book of Zoology," a work which I wish every wide-awake boy or girl, who wishes to study animal life, could have. Here, figure 1, is Prof. Morse's portrait of one of the Crawfishes, for we have several. You will see that there are two unlike parts, the body and head are not distinct, but all in one piece, or shield, and make the upper part, while the lower part (that we in the lobster incorrectly call the "tail," but which is really the abdomen,) is made up of rings, and in the engraving is shown curved under the body; at the very end of this part are some broad plates, or fins, which are shown separate in figure 2; these the animal uses in swimming, and can go backwards very rapidly. Beginning at the head end, you will notice its curious eyes, which are set upon stalks, so that the animal can push them out and turn them, to see in all directions; then there is a pair of long feelers, and a pair of shorter ones, which are double. If you should carefully examine the mouth, you would find it well guarded by six pairs of parts, some of which are jaws, and others are more like paws or feet. Then, from the under-side of the body, are five pairs of legs, the forward pair much larger than the others, with powerful pincers at the end; these they use to fight with, to catch their prey, and, sometimes, to nip the toes of boys who are not on the lookout. The next two pairs of legs end in small nippers, and the other two pairs have only a single claw. The lower half of the animal, or abdomen, is made up of rings, jointed together, and underneath, on each ring, is a pair of flipper-like bodies, which are used like fins in swimming forwards, and in the female they hold the eggs until they hatch. There are many other curious things about the animal, but we can not now look inside of it to point them out. The shell is hard, and the animal can not grow, so occasionally (once a year it is supposed) the creature gets out of its shell. Lobsters and Crabs, *moult*, as it is called, in a similar manner; the body part separates from the abdomen, and the shield of the body cracks down the back; the animal wriggles its

Fig. 2.—TAIL.

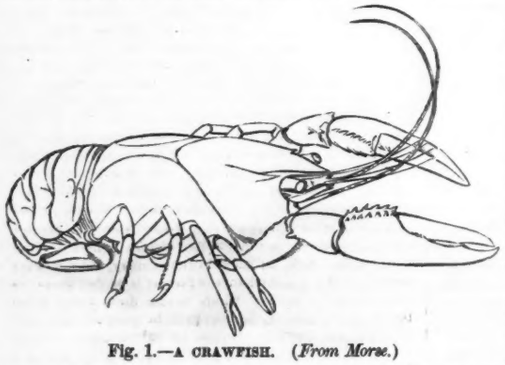


Fig. 1.—A CRAWFISH. (*From Morse.*)

body out of the opening, and then pulls out one leg after another,

LIKE PULLING OFF ITS BOOTS,

until at last it is quite free. The animal is then a helpless, weak, soft thing, unable to defend itself, so it hides away from all enemies, increases in size; its skin gradually hardens, and at length becomes a shell. Sometimes one of the legs is too tight a fit, and will not come out of the "boot"; in this case, after trying for a while, the animal finding that it will not come off, just leaves its leg, and goes away without it. You will think that, having so many legs, one the less will make no difference. Not so—the leg grows again! These animals have a droll way with their legs; if, in fighting, the enemy gets fast hold of a leg, they let it drop, and get off with the rest. The Crawfish feeds on any kind of animal food, living or dead, even eating carrion. In some places they cause much trouble by making holes in embankments, as they are fond of burrowing, and sometimes they live in low grounds at a distance from streams, in holes containing water. The European Crawfish is larger than ours, and is much esteemed as food....There is another animal that I was asked about some time ago—

THE COMMON "SOWBUG."

I was asked if it were an insect, and if it did any harm. No doubt every boy and girl, almost, knows this animal, which is very common in cellars, under logs and boards that have laid long on the ground, and in other damp places; because it is called Sowbug, they have most likely supposed it was a bug, or insect. The engraving, fig. 3, also from Prof. Morse's book, shows the form of the animal magnified, and the line at its side gives the natural length; it is of a bluish or lead-color, and, having an abundance of legs, it travels off in a lively manner. The Sowbugs are called Wood-lice in England, and sometimes, on account of their color, "Slaters." This is not an insect, but a crustacean, and belongs to the same class with the Crawfish. I have not room to point out how it is like, and how it is unlike the Crawfish, but one of the differences is in the number of feet, for which reason it is placed in a different division of the class. Like the Crawfish, the Sowbug carries its eggs under the body. While these creatures can, and do, live on decaying plants and other useless matter, they are so fond of other things, that we must, on the whole, look upon

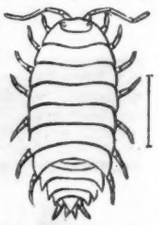


Fig. 3.—SOWBUG.

THE SOWBUGS AS ENEMIES;

they are fond of fruit, and, though they do not eat much, they make unpleasant holes in strawberries and other fruits; then there are some delicate garden plants that they destroy, and in the greenhouse they will make great mischief. They are especially fond of the roots of those plants known as Orchids, which are, perhaps, the most costly of all hot-house plants, and gardeners have to keep a sharp look-out, and catch the Sowbugs in traps made of a scooped-out apple or potato....Master "J. W. W.," Gilmores Mills, Va., wishes me to describe

THE COMMON HOUSE-FLY.

I do not wonder at his wishing to know something about this very common, and very annoying insect—I should like to know about it too. Dr. Packard, one of the recent writers on insects, in a popular work on "Our Common Insects," tells us that the changes of the fly have not been traced in this country! It is strange that our entomologists give very full accounts of far-away insects that few care about, but when it comes to the commonest of all, the pest of every house, they admit that they are not sure whether our fly is the same as that of Europe, or a different species! The English works, that I have access to, tell but little. From what I can pick up here and there, it appears that a few flies, enough to continue the breed, live through the winter, hidden in the cracks and crevices of our houses. These come out when the weather gets warm, and the first that we see are those that have been wintered over. Doct. Harris wrote, over 25 years ago, of our fly, "It is probable that, like the domestic fly of Europe, it lays their eggs in dung, in which its larvæ [maggots] live, and pass through their changes of form," and so far as I can find out, the scientific gentlemen, who study insects, are content with this "probable" statement, and have added nothing, so far as I am aware, to the history of the house-fly....The same correspondent asks if I think it proper to

KILL THE BLACK SNAKE;

he has been told that this snake should be spared, because it kills rattle-snakes, while he thinks it should be killed, because it destroys so many insect-eating birds. I have never considered the question. I very much doubt the rattle-snake story; if I were sure that the Black Snake did kill useful birds, I should prefer to dispense with the snake. As a general thing, I protest against the killing of snakes, merely because they are snakes. My young friend must act according to his knowledge; I can not decide for him....Master "J. W. W." has still another point. He was told by an "intelligent young man," that the

COMMON EARTH, ANGLE, OR FISH-WORM,

was the larval, or grub, state of the Fire-fly, or "Lightning-bug," and that, in the course of time, the worms would turn into the perfect insect.—This is a great mistake. The Earth-worm does not "turn into" anything; it is as complete an animal *in its way*, as a dog, a horse, or even as a young man is, according to his kind.

Aunt Sue's Chats.

J. B. W. and several others have asked for canvas-patterns for tidies, etc. It does not seem worth while to go to the expense of engraving them for the *American Agriculturist*, when they may be procured for a few cents at almost any worsted store.

FLORENCE M.—The prettiest way of arranging flowers that I have seen lately, is to fill your saucer or dish with fresh, moist, green moss (*polytrichum* is the best), and stick your flower-stems into it. The effect is very pretty, and a few flowers make quite a show. Keep the moss wet. With that arrangement you will not need a "cover to hide the stems." For answer to your other question, see notice to J. B. W.

M. R. asks, "Is it proper to have a spit-box in a parlor?"—I should like to be able to answer, most emphatically, "*no*"; but if your guests have acquired that most abominable habit—spitting—it may be necessary to have the horrid thing in the room, to save the carpet. There are times, however, when I think the mere appearance of the utensil invites contributions. I would not have selected this subject for a lecture, but as M. R. has started me, I should like to add, to all the boys (I dare not say men), who read these lines, please don't ever spit, if you can avoid it. It is an ungentlemanly habit.

MARY AUGUSTA writes: JUNE 11, 1877.

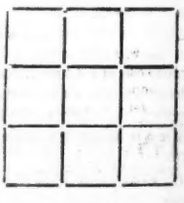
"*Darling Aunt Sue:*—I am a country girl, and as I am a blonde, I of course have plenty of freckles, as all girls and boys do that are not afraid of the fresh air. Now, Aunt Sue, I want you to be so kind as to publish a recipe for making a wash for my face, to take them off, one that will not spoil my skin, as all, or nearly all, of these advertised washes do. Now, if it is in your power to do anything in that line, or if you can't, I will always be your loving friend, MARY AUGUSTA."

Well, my "darling," Mary Augusta, I have often read recipes for removing freckles—lemon-juice, borax, and water, etc., but I never saw or heard of any that were efficacious (except those which took "skin and all"). I suppose you could get rid of them if you should stay in bed, send for the doctor, and not go out of the house for three months or so. How would you like to have a clear complexion at that expense? The best remedy for freckles that I know of, is to be so pleasant, unselfish, good-natured, and jolly, that everybody will be glad to see your freckles come into the room. I spent one summer at the sea-side, where there was a young lady with a very fair complexion, but she always muffled herself up in veils and wraps, even when she went in bathing. I noticed that, although strangers were attracted by her good looks at first, the attraction didn't last long, and the "strangers" soon deserted the beauty and had a good time with the freckled girls. So never mind your freckles, dear. I rather like them.

Answers, too late for notice, to the liquor agent's account, have been received from Mrs. R. H. S., William S. F., Jesse M., Vox Pueri, O. H. L., C. C. W., and John L. D. (Jesse M., you will have to try again.)

Very clever answers have also been sent to the "Puzzling Puzzle" in the May No., page 187, by C. H. Hill, W. C. Harvey, George White, W. S. Fuller, Webfoot, O. W. West, G. A. W., and W. W.

The latter offers a puzzle, which, though not original, is very good, and may be new to many of our readers. Place 24 sticks (toothpicks or matches) so as to make nine squares, thus:



Required the removal of eight sticks or matches, so as to leave two, and only two, complete squares.

When sending the prizes to those who answered the prize enigma, I requested an acknowledgment of the parcels, and asked most of the recipients to tell me what word gave them the clew to the whole. Only eight have responded. I trust that the other four prizes have not gone astray. I should like to publish some of the pleasant letters received on the subject, but lack of space forbids. Many inform me, conscientiously, that they were assisted by other members of the family. That was all right, provided that only one of that family sent the answer. Geo. M. Taylor says that he fixed upon "Ounce" for the animal, and "stuck to it." And adds, "I sent a copy to two friends, who are reputed experts, and they have been working at it since. One of them has the aid of a philologist, who is trying also, but none of them have got further than 'tiger' yet, for the 'carnivorous animal.'"—J. B. M. and C. S. Campbell guessed the squirrel-fur ("Vair"); and Jessie L. Kirk, Mrs. Thomas, and Abraham Resh found "Macaroon," and now *I* wonder how they ever found that word as a definition for *fop*.

Will Frederick Bruce, Jas. A. Windsor, Jr., Edward D.

Campbell, and May Goldie, please send me word whether they have received their prizes?

Thanks for letters, puzzles, etc., to T. Mills Clark, Erich, Bessie Jones, F. W. C., Sally Ratus, Mary A. E., Effie, G. W. S., John W. Wheatley, and C. W. H.

Aunt Sue's Puzzle-Box.

The Double Acrostic is a very pretty style of puzzle, and may be made interesting and instructive. I can scarcely believe that any of my readers need any teaching in the matter of their construction, but should there be some who would like to be enlightened, they can read the following remarks. Select two words having the same number of letters in each; e. g., bird-cage, book-case, Jupiter-Neptune, Charles-Dickens, etc. We will take the latter for our use at this time.

Write the letters forming the Christian name in a perpendicular row (number them), and the letters forming the surname in another perpendicular row exactly opposite.

Thus——
1 C.....D
2 H.....I
3 A.....C
4 R.....K
5 L.....E
6 E.....N
7 S.....S

Now find words beginning with c, and ending with d, with which to fill the first line;—cold, card, child, cod, etc., and select the one which you prefer to define. We can fit the above seven lines with cod, Hayti, almanac, rock, love, Ellen, synopsis. Now define them. 1. A fish. 2. An island. 3. A calendar. 4. A mineral. 5. A passion. 6. A girl's name. 7. A compendium.

State that the initials give the Christian name, and the finals the surname of a celebrated author, and your double acrostic is ready to be worked out.

Now I will give you one to find out. You will see that it has eight letters in each column. You may be able to find the first item at once; if not, put a cross down upon your slate or paper in place of the letter you need. The object of filling the space with a cross, is to keep before you the number of letters needed and to show what items you lack. You can scarcely hope to get item No. 2—"The Capital of a European country"—without the aid of the other items, as there are so many countries; so skip that (after putting down another cross, below the first, instead of the letter), and try the third item, which is more definite, and will give you a clew to the poets' names, for which you will now have to search:—two names, each containing eight letters, the third letter of the first name being the same as the initial letter of the group of islands, and the second poet's name having for its third letter the last letter of the group of islands. Having found two names answering the requirements, write them down (as given in the sample—"Charles Dickens"), and fill in the items, which will now be comparatively easy (if you have found the right poets), as you have the first and last letter of each item. Here it is:

DOUBLE ACROSTIC.

The initial and final letters give the names of two popular poets.

1. An island in the English Channel.
2. The capital of a European country.
3. A group of islands west of Greece.
4. A city in Ohio.
5. A country in Europe.
6. One of the United States.
7. A river in Spain.
8. A city in the north of France. D. M. W.

ANSWERS TO PUZZLES IN THE JUNE NUMBER.

POSITIVES AND COMPARATIVES.—1. Right, writer. 2. Prop, proper. 3. Mast, master. 4. George, Georgia. 5. Kate, Cater. 6. Scamp, scamper.

Send communications intended for Aunt Sue, to Box 111, *P. O., Brooklyn, N. Y.*, and *not* to 245 Broadway.

☞ Correspondents will save time, if they will address their letters to me, *until the first of November* (not afterwards), to "Rowayton, Fairfield Co., Conn."

The Doctor's Talks—How Things are Done in Other Countries—Something about the Japanese.

When I began to talk about the doings in other countries, I did not expect to do so every month, but I had no idea, until I looked, that it was three months since the last "Talk." How the time runs by! The space is small, and the things I write about are many, and I wish to get in as great a variety as possible. A gentleman who passes a good deal of time in Japan, sends to his friends here various little articles from that country, but there is nothing among the presents that please me so much as the photographs he has sent, especially those of the different classes of people and their ways. There is something about photographs that makes them more satisfactory than any drawings or other pictures; perhaps it is because we feel that they represent things just as they are, and the imagination of an artist has had nothing to do with the picture. In Japan the classes are very distinct, and the work-people, the farmers, and others, dress very differently, and live differently from the nobles and higher classes. We have had within a few years so many Japanese in this country, that we have become quite familiar with their faces; but these are from the educated, if not the wealthier classes, they dress as we do, and give us no idea of the Japanese in general. It is wonderful that a country, which has, until 25 years ago, kept by itself, and shut out all foreigners, should now be so quick to adopt foreign ways, and to introduce all kinds of useful articles and customs from other countries. The people are changing so rapidly, that in 25 years more, all that we shall know of many of their customs, will be preserved in photographs and other pictures.

In all cities of the East, the stranger is surprised by the amount of business carried on out of doors; not only do people work at their trade with no other shops but the streets, but a vast number of articles are sold by merchants who carry their whole stock upon their shoulders, and have the open air for their stores. In the cities of Japan this is carried on to a great extent; not only do the stores and shops travel about, but even the libraries—for the people are great readers—go round on the shoulders of men, to their patrons. Figure 1 shows how the markets are managed, and being from a photograph, is very accurate. These men have the usual pole, made of bamboo, as that is both light and strong; this goes across the shoulders, and from its ends are hung the baskets, boxes, or whatever is to be carried. They are selling, if we except rice, the chief articles of food—fish, vegetables, and fruit. Fish are very abundant in the Japanese waters, and form the sole animal food of the lower classes. Their vegetables are much the same kind that we have, but are said to be generally of inferior quality; one of their favorite vegetables is an enormous radish, the *diakon*, which is 2½ feet long, and 4 inches thick, and eaten raw or pickled; among the things which we do not have, are lily bulbs, and the young and tender sprouts of the bamboo. They have apples, pears, peaches, and other fruits such as we have, besides some which we can not grow. But the strangest thing about their fruits is, that they eat them, peaches, apples, grapes, and all, while they are yet green, hard, and sour. In this matter the whole nation is like some boys who will eat green apples, especially if they can get them on the sly. But the boys have not the excuse for eating green fruit that the Japanese have, or think they have. I have already stated that their principal food is rice, which answers them in the place of bread of all kinds, and they have a notion that the acid of the green fruit prevents any ill effects from so much rice.

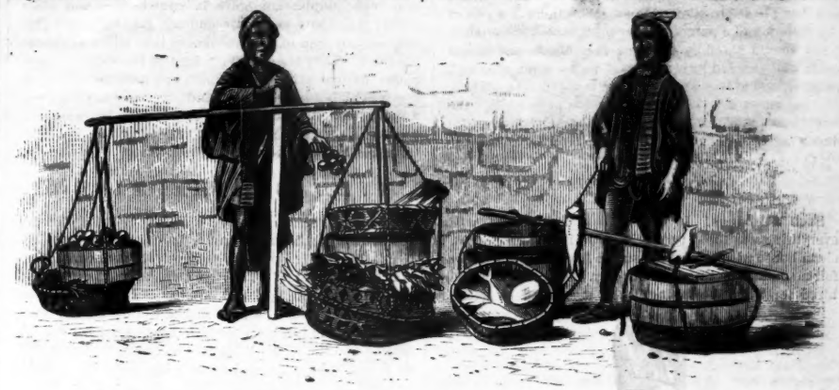
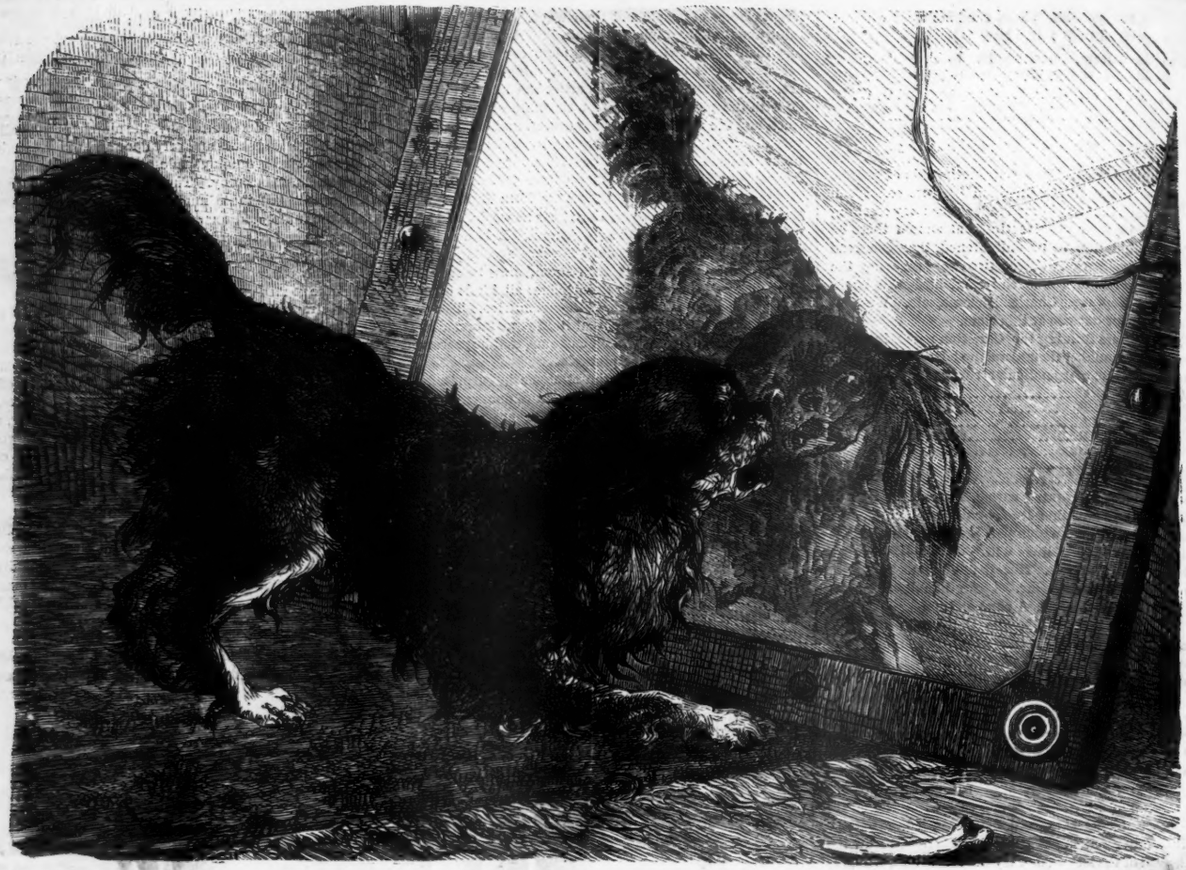


Fig. 1.—A STREET-SCENE IN JAPAN.—VENDERS OF FISH, VEGETABLES, AND FRUIT.

One picture (fig. 2 on next page) shows a Japanese fireman. The buildings in Japan are not often more than one story high, but as they are built of very light materials, they burn very readily, and when a fire breaks out in a large city, it often burns over a great share of it, before it is stopped. The firemen have very small engines, not larger than we sometimes see used for watering gardens, and their hose-pipes are made of bamboo. They have hooks and ladders too, but instead of carrying them on a truck drawn by horses, a man takes them on his shoulders. You would hardly guess him to be a fireman; he certainly looks very little like one of our "fire-laddies," who has more "go" in him than a whole regiment of such quiet-looking citizens as this. No wonder that in a city in which every building is a regular tinder-box, where the fire-engines are mere squirt-guns, and the firemen look more like scholars than like boys who "run with the machine," the merchants should try to preserve their goods from fire. This they do by building fire-proof ware-houses, and very droll houses they are. A framework of bamboo and timber is first built, and then plastered up with mud, to make a mud-shell at least a foot thick. The doors and shutters of the building are made of the same thickness, and also of sticks and mud. When a fire breaks out near by, the merchant puts all his valuables inside, shuts up every door and other opening; a paste of mud is quickly made, and this is plastered over every crack and cranny. The light buildings all around are burned, but these mud fire-proofs stand unharmed amid the ruins, and answer for the Japanese merchants quite as good a purpose as Herring's and other fire-proof safes do in our city fires.

The only other picture from these photographs, that I can make room for, is fig. 3 (see next page). After seeing such a strange-looking fireman, I think you will be puzzled to guess what may be the occupation of this gentleman. Well, he is—of all things in the world—a farmer! He is not now in his working dress, for that is peculiar in being nearly no dress at all; indeed, laborers of all kinds, even those who work in the streets of cities, go nearly naked. But this farmer has on his storm rig, and is prepared for bad weather. At work the farmer would probably have nothing on his head, but now he has on a sort of umbrella-like hat, to shed the rain, and the back of his head is also protected. But the funniest part of his out-fit is his cloak, his storm cloak, or water-proof. You will wonder what this cloak can be made of, and when I tell you that it is made of straw, you will wonder still more. But you must recollect that very generally in some European countries, and sometimes in this country, the roofs of barns and sheds, and even of the dwelling-houses, are covered with straw, are thatched, as it is called, and that such roofs, when properly made, are both tight and warm. The Japanese farmer's cloak is something like a thatched roof; it is made of a piece of cotton cloth, to which the straw is sewed, layer by layer, one layer overlapping that below it, in such a manner as to shed the rain, and though such a cloak can hardly be called handsome, it keeps the wearer both dry and warm—and that is all that the most costly garment can do. You will perhaps wonder what the farmer carries at his left side, and perhaps think it may be his style of scythe, or some other farming implement—not at all, it is only his sword. Formerly it was the custom for all men to carry swords, even the common people, when dressed up, carried one, while the nobility were distinguished by carrying two swords, one above the other, on the same side of the body. I say these were worn, because in the cities, where foreigners are numerous, these old customs are passing away, and the better classes generally dress in our style. Still, far back in the country, the old ways are followed up, and when the farmer is in full dress, he still carries his sword. There is one more thing about this farmer's wet-weather out-fit to be noticed—his foot-wear for wet weather. He has no rubber shoes, or even a pair of well greased cow-hide boots, to keep the mud and water from his feet, so he does the next best thing, which is to lift his feet above the wet soil, by putting on a pair of wooden clogs! Take the farmer as he is pictured, and he looks very little like our farmers. But their style of farming is as unlike ours as the dress of the farmers is different. We look upon 50 acres as a small farm, while in Japan, 10 acres is a large one; with us we do everything with horse-power and machinery that can be done with the help of these, but there all the work—from breaking up the soil to harvesting—is done by hand-power and hard work. I don't think that the great numbers of our boys and girls who live upon farms all over the country, would consider, as many do, their lot an unpleasant or a hard one, if they could know how much better off they are than farmers, not only in Japan, but in other parts of the world that regard themselves as more highly civilized.

THE DOCTOR.



HOW GYP WAS DECEIVED BY THE MIRROR. — *Engraved for the American Agriculturist.*

Such a rumpus! It was house-cleaning time, when everything was topsy-turvy. How is it that people can't clean house without making such a fuss about it? It was full noon, and by this time our own Biddy, and a woman hired for "house-cleaning," had succeeded in getting

Fig. 2.—JAPANESE FIREMAN.—(*See page* 307.)

things into a lovely state. There were some of the kitchen things in the parlor, and, of course, some of the parlor things in the kitchen, while others were placed in the hall, so as to be as much in the way as possible. Well, things were pretty thoroughly mixed, when there was such a rumpus! The dog, Gyp, barked as if he were several dogs, and he tore aroond as if he had gone mad over the confusion. We all rushed to the hall, for there was where the trouble seemed to be, to see what was the matter, and the whole thing was so funny, that even Biddy forgot to be cross, and actually laughed, and for Biddy to laugh at house-cleaning time, was something before unknown; for several days before, she begins to be serious, and by the time the day comes, she is in "a state of mind," but now Biddy had a good hearty laugh! and what was more, she had several little laughs to herself, during the rest of the day, just at thinking of it. You will wonder what it could be that would make Biddy lose her solemn face on house-cleaning day. This is the way it was: Gyp was always fed at noon, as regularly as the time came. Seeing all the confusion, and no signs of his dinner, he hunted for himself, and having found a bone, went to the hall, as that seemed to be the quietest place, to enjoy it. In setting things where they shouldn't be, a large mirror was stood on the floor of the hall, and, of course, with the glass outward. Gyp came along with his bone, and behold, there was another dog with another bone; this would never do, so Gyp, probably thinking that no other dog besides himself had a right to a bone in this house, laid down his own to capture the bone from the other dog. But the other dog put his bone down, Gyp could see it, and was going for it, but there he came face to face with the other dog. Gyp is just a bit of a coward, and when he saw the other dog coming towards him, he started back, and jumped and barked in a way that we never supposed possible. When we came he was so busy in going towards and retreating from the strange dog, turning this way and that, but all the time keeping at a safe distance, that he did not notice us at first; but the sight of the bewildered animal, now threatening and now backing away from his own shadow, was one of the funniest sights I ever saw. At last we laughed so loudly that Gyp noticed us, and looked as if he would like help. He still had his eyes fixed on the other bone, as if he was still determined to have it. So to help him I moved the mirror out from the wall; he was sure of his bone now, and he came behind the glass with a bounce, ready to pick it up. Such a change in that dog, when he found there was nothing there! He evidently felt that he had been imposed upon, and started out with a dismal whine, even forgetting his own bone. Gyp has evidently been troubled in his mind; he can't make it out, and now that the glass is hung, we have only to call the dog's attention, and touch the mirror, when he will

Fig. 3.—JAPANESE FARMER.—(*See page* 307.)

put on a most sheepish air, and want to get away from it. This was what made the rumpus. SARAH J.

PARENTS

buy SILVER TIPPED SHOES for your Children. You will find your **shoe bills reduced one half.**

FINE TEAS.

This is a combination of capitalists to supply the consumers of Teas throughout the United States on the mutual principle.

We expect every consumer of Teas to render us all the assistance they can in carrying out our enterprise, as we make a specialty of SUPPLYING CONSUMERS ONLY, (and allow no middlemen to make any profit on our importations,) which will enable us to supply them with Teas at prices lower than have ever been known, and of those fine qualities that seldom reach the interior, being sold only in large cities and among the very wealthy.

SEND FOR PRICE LIST.

CONSUMERS' IMPORTING TEA CO.,
No. 8 Church Street,
P. O. Box 5509. NEW YORK CITY.

YOU CAN BUY A
Genuine Waltham Watch
without any risk and without leaving your home. Write for our Price List, which is sent free and gives full particulars. Address
HOWARD & CO., No. 222 Fifth Avenue, New York.
Mention Agriculturist when you write.

HARDWARE and CUTLERY.
Builders Hardware.—Everything necessary for building or repairing the House, Barn, or Outhouses. **Machinist's Hardware.**—Screws, Washers, Bolts, Wrenches, etc. **House Furnishing Goods,** including Refrigerators, also **Farming Implements** and **Tools** of all kinds
JOSEPH T. FARRINGTON,
32 Howard St., New York City.

NEW
DIPLOMAS
FOR
AGRICULTURAL SOCIETIES.
Specimens supplied by
The Major & Knapp Engraving, Mfg. and Lithographing Co.
56 & 58 Park Place, N. Y.

FRIENDS, if you are in any way interested in
BEES or HONEY,
we will with pleasure send you a sample copy of our **Monthly GLEANINGS IN BEE CULTURE,** with a descriptive price list of our latest improvements in **Hives, Honey Extractors, Artificial Comb, Section Honey Boxes,** all Books and Journals, everything pertaining to Bee Culture. *Nothing patented.* Simply send your address on a postal card, *written plainly,* to
A. I. ROOT, Medina, Ohio.

PALLISER'S MODEL HOMES FOR THE PEOPLE, 50 pages, 40 engravings of houses, post-paid 25c. Send for it. GEO. PALLISER, Architect, Bridgeport, Ct.

Agricultural
Insurance Company, of Watertown, N. Y.
Twenty-four years old. Total assets for the security of Policy holders January 1st, 1877, $1,050,622.00. Insures only Farm Property and Residences against fire and lightning. Takes no business risks.

50 **MIXED CARDS,** with name 10c. & stamp. 26 styles Acquaintance Cards, 10c. Samples for 3c.
M. W. DOWD & CO., BRISTOL, CONN.

H.W. JOHNS' PATENT.
ASBESTOS
MATERIALS.
Paints, Roofing, Steam Pipe and Boiler Coverings, Steam Packing, *Sheathings, Fire, Acid,* and *Water-proof Coatings, Cements,* &c.
Send for Samples, Illustrated Catalogues, Price-Lists, &c.
87 MAIDEN LANE, NEW YORK.

INVALID RECLINING
ROLLING CHAIRS.

THE BEST MADE.
Send for Circular to
FOLDING CHAIR CO., NEW HAVEN, CT.

The Lancaster
BUTTER CARRIER
with a **CUP** for every print or pat, will enable you to market your butter in the best possible condition. All sizes and forms of Box and Cups made. Price $10 for a 48-pound carrier, with center Ice-box. Send for Circular. See advertisement with cut in June No., page 238.
E. L. RESH, Lancaster, Pa., Sole Manufact.

BUTTER WORKER.

The most Effective, Simple and Convenient Yet Invented. **Works 30 lbs. in less than 5 minutes,** thoroughly working out the buttermilk and mixing in the salt. Send for circular and price lists.
A. H. REID,
No. 6 North 18th St., Philadelphia, Pa.

BUTTER how to make, pack, preserve & COLOR. Extract Rancidity. Dairymen's Receipts, for 3 cent stamp. MRS. B. SMITH, 327 Arch St., Philada., Pa.

NORNY'S
Fruit Preserving Powder
Is tasteless, and preserves all kinds of fruit, either with or without being air tight. This powder has been used for the last seven years in all the States of the Union, with perfect success. It retains a finer flavor than any other process. Price, 50 cents a box, which preserves 60 pounds of dressed fruit. **Three boxes for One Dollar.** Sent by mail, to any address, with full directions. Usual discount to the trade.
JOHNSTON, HOLLOWAY & CO.,
603 Arch St., Philadelphia, General Agents.

S. B. JEROME & CO.
Extra Quality Clocks.
NEW HAVEN, CONN.
(Established 1836.)

The "Cabinet."
Manufacture various special novel and tasteful styles of
DETATCHED
Lever Time Pieces.
They have substantial and durable metal movements, with balance wheel like a watch; will run in any position, and are of especial value to the traveller.
They are suitable for the Library, the Family Room, the Dining Room, the Sleeping Room, the Shop, the Store, and the Cabin, and any place where correct time is desirable.

The "St. Nicholas," imitation morocco, (4½x4)	$2.00
The "Souvenir," turkey morocco, (4½x4)	2.50
The "Cabinet," black walnut, (6x4½), see cut	2.50
The "Boudoir," octagon, morocco, (5 in.)	3.50
The "Roslyn," Scotch plaid, (6x4½)	4.00
The "Melrose," Scotch plaid, (6x4½), mantel	4.00
The "Holyrood," polished white holly, (6x4½)	4.00

Accuracy and Durability Guaranteed.
Carefully packed and sent safely by mail, post-paid, on receipt of price.

CHAS. H. GIBBS & CO., **General Commission Merchants,** 252 Washington St., New York, Early Fruits and Vegetables a Specialty. **Our facilities for selling Hot-house and early fruits are unsurpassed.** References: Moore, Jenkins & Co., 127 Franklin St., N. Y. Market Reports sent free.

IMPERIAL EGG FOOD.
FOR
ALL VARIETIES
OF
POULTRY.

LAYING HENS, YOUNG CHICKS, DUCKS, and TURKEYS.
Trade Mark secured by Letters Patent.
WILL MAKE HENS LAY.
Prevents and cures all common ailments and increases the profits of the Poultry Yard from 50 to 100 per cent. On application we will send circulars and testimonials from the best authorities on Poultry Matters in the country. Packages sent by mail on receipt of 50 cents for trial size. $1.00 and $2.00 for large packages.
For sale by Druggists, Grocers, and Postmasters.
WHOLESALE AGENTS.
H. B. Arnold & Co., Boston. | John F. Henry & Co., New York. | Benson & Burpee, Philadelphia.
Geo. C. Goodwin & Co., Boston. | B. K. Bliss & Sons, New York. | R. E. Sellers & Co., Pittsburg, Pa.
CHARLES R. ALLEN & CO., Proprietors, P. O. Box 103, Hartford, Conn.

Potato Pests.
Being an Illustrated Account of the
Colorado Potato-beetle
AND THE OTHER
Insect Foes of the Potato
IN NORTH AMERICA.
With Suggestions for their Repression and Methods for their Destruction.
BY
CHARLES V. RILEY, M. A., PH. D.
(STATE ENTOMOLOGIST OF MISSOURI.)
FINELY ILLUSTRATED.

TABLE OF CONTENTS.

THE COLORADO POTATO-BEETLE.

Its Past History.—The Insect's Native Home.—Rate at which it traveled.—How it traveled.—It spreads but does not travel in the Sense of leaving one District for another.—Area invaded by It.—Causes which limit its Spread.—How it affected the Price of Potatoes.—The Modification it has undergone.—Its Natural History.—Its Poisonous Qualities.—Its Food Plants.—The Beetle eats as well as the Larva.—Its Natural Enemies.—Remedies.—The Use of Paris Green.—Bogus Experiments—Alarm about the Insect Abroad.—Nomenclature.—The Bogus Colorado Potato-beetle.

OTHER INSECT FOES OF THE POTATO.

THE STALK-BORER.—THE POTATO STALK-WEEVIL.—THE POTATO OR TOMATO-WORM.—BLISTER-BEETLES. The Striped Blister-beetle. The Ash-gray Blister-beetle. The Black-rat Blister-beetle. The Black Blister-beetle. The Margined Blister-beetle.—THE THREE-LINED POTATO-BEETLE.—THE CUCUMBER FLEA-BEETLE.—THE CLUBBED TORTOISE-BEETLE.

Price, Post-paid, paper covers, 50 cts.; cloth, 75 cts.

NEW AMERICAN FARM BOOK.
Originally by **RICHARD L. ALLEN.**
Revised and greatly enlarged
By LEWIS F. ALLEN.
PRICE, POST-PAID, $2.50.

Allen's American Farm Book has been one of the standard farmers' hand-books for twenty years; it is still a valuable book, but not up to the times; and as its author, Mr. R. L. Allen, could not give time to its revision, this was undertaken by his brother, Hon. Lewis F. Allen, the distinguished farmer of Erie county, editor of the American Shorthorn Herd-Book. The work is greatly enlarged, and full of suggestions from the rich experience of its editor and reviser, and is called the *New* American Farm Book.

HARRIS ON THE PIG.
Breeding, Rearing, Management, and Improvement.
With numerous Illustrations.
By JOSEPH HARRIS.
PRICE, POST-PAID, $1.50.

This is a most valuable treatise upon the breeding rearing, and management of swine, and is by one thoroughly familiar with the whole subject. The points of the various English and American breeds are thoroughly discussed, and the great advantage of using thorough-bred males clearly shown. The work is equally valuable to the farmer who keeps but few pigs, and to the breeder on an extensive scale

Either of the above books sent post-paid on receipt of price by

ORANGE JUDD COMPANY,
245 BROADWAY, NEW YORK.

Turnip Seed Circular,

giving many hints of the great value of this crop and full directions for its cultivation. Also a list of **VEGETABLE** and **FLOWER SEEDS** for sowing in **August** and **September**, mailed free.

Our **AUTUMN CATALOGUE OF DUTCH BULBOUS ROOTS AND SMALL FRUITS**, beautifully illustrated, will be ready for distribution Sept. 1st. A copy will be mailed to all applicants enclosing **Ten Cents**; regular customers supplied gratis. Address

B. K. BLISS & SONS, P. O. Box 5,712,
34 Barclay Street, New York.

TURNIP SEED.

All grown from carefully selected Roots.

The following varieties, will be mailed *post-paid* upon receipt of price affixed: Early White Dutch, White Strap-leaf, Red-top Strap-leaf, Cowhorn, Improved American Ruta-baga, Long White French, Sweet German, Large Yellow Globe, 0 cts. per ounce, 25 cts. 4 ounces, 75 cts per pound. Prices for larger quantities to dealers, either in bulk or packets for retailing, will be given upon application.

FLOWER SEEDS FOR FALL SOWING.—20 varieties Hardy Annuals and Perennials, $1.

Address **B. K. BLISS & SONS,**
34 Barclay Street, New York.
P. O. Box 5,712.

TURNIP SEEDS. NEW CROP.

Purple or Red-Top, White Flat Dutch, Ruta Baga or Swedish, Golden Globe, White Globe, Long White French, &c. Price, 75 cents per lb.; 10 cents per oz. Mailed free on receipt of price. Large Early York and Oxheart Cabbage, Early Stone-Head and Butter Lettuce, Round and Savoy Spinach, Corn Salad. And all other seeds for sowing in the Autumn. **HENRY A. DREER**, Seedsman,
714 Chestnut St., Phila.

FOR RELIABLE TURNIP and other SEASONABLE SEEDS

Address **R. H. ALLEN & CO.,**
Growers and Importers,
189 & 191 Water St., New York.
AGRICULTURAL IMPLEMENTS, &c., &c.

Knox Fruit Farm & Nurseries.

Strawberry Plants Grown in Pots.

Will bear Large Crops next Season.

Jucunda, Fillmore, and other varieties, $3.00 per 100. **Monarch of the West, Col. Cheney, Norman, Sterling,** and other new varieties, $5.00 per 100.

As the plants are shipped with some of the famous Knox Farm soil with them, they can not be sent by mail.

Catalogue and Holland Bulb List free.

J. B. GRIMES, Box 115, Pittsburgh, Pa.

Choice Nursery Stock.

This stock consists of an immense number of Apple and Peach trees of the very best quality. Also Pear, Cherry, Plum, Forest, and Evergreen trees, in large number and of very vigorous growth. Grape vines and Currant plants, two-year old, that defy competition in quality, and in almost unlimited quantities.

Apple and Cherry seedlings, one year old, of fine growth and by the acre.—A large quantity of Durand's Great American Strawberry plants.

Address **STEPHEN HOYT & SON,**
New Canaan, Ct.

Peach and Pear Trees—a large stock.

Other trees and plants in full supply.
New Brunswick (*Nurseries*), **N. J.** **Edwin Allen.**

THE NEW SEEDLING PEACHES

Wilder, Saunders, and Downing. Centennial award granted. Earliest exhibited. *Trees and buds* **for sale.**
H. M. ENGLE & SON, Marietta, Pa.

NEW RARE AND Beautiful Plants.

The undersigned has at all times a rich collection of **GREEN-HOUSE** and **HOT-HOUSE PLANTS.—BEDDING PLANTS; CHOICE ROSES; DAHLIAS**, &c.—well grown and at reasonable prices.—Can be shipped at all seasons.—Catalogues sent to applicants.

JOHN SAUL, Washington, D. C.

FRUIT AND ORNAMENTAL TREES!

LARGE STOCK. LOW RATES.

STANDARD PEAR TREES A SPECIALTY.

Send stamp for trade list. AGENTS WANTED.
E. MOODY & SONS, Lockport, N. Y.
NIAGARA NURSERIES. Established 1839.

TREES

100,000 Fruit,
250,000 Evergreens.
500,000 Greenhouse,
Bedding Plants, &c.

Catalogues Free. 224 Year. 400 Acres. 13 Greenhouses.
STORRS, HARRISON & CO., PAINESVILLE, Ohio.

PLANTS BY MAIL | **A Specialty.**—Strawberry Plants in August. Also in quantities by express, if desired. Send for Price List to **Purdy & Johnson,** Palmyra, N. Y.

500,000 STRAWBERRY PLANTS

Ready by July 15th, **POT LAYERS** of the following Strawberries:

SETH BOYDEN, JUCUNDA,
MONARCH OF THE WEST,
TRIUMPH D'GAND,
WILSON AND CHAMPION.

Price, $3.00 per 100, $25.00 per 1,000.

Larger quantities at special rates.

Planted any time from July 15th to September 15th, in this latitude, from these pot grown layers, they will give **A FULL CROP NEXT SEASON.**

Instructions, giving our simple and certain mode of culture, with full descriptive list of varieties, mailed free.

PETER HENDERSON & CO.,
35 Cortlandt St., New York.

E. P. Roe

"1st PREMIUM" STRAWBERRY PLANTS.

Plants, pure and true to name, of all the varieties that took the 1st prize at the N. Y. Horticultural Exhibition, for sale. Send for Circular. Address

E. P. ROE, Cornwall-on-the-Hudson, Orange Co., N. Y.

The Great American Strawberry

"AHEAD" of all others, both for Amateurs and for Market. Largest Size, good Quality, and very Productive.

Plants now ready in Pots, $3 per doz., $12 per 100, by mail or express. **JOHN S. COLLINS,**
Moorestown, New Jersey.

STRAWBERRY PLANTS.

GREAT AMERICAN, Beauty, Pioneer, Cumberland, Triumph, **CAPT. JACK,** Prouty's Seedling, **STERLING,** Margaret, Eclipse, **DUCHESSE,** Crescent seedling, and **SEVENTY-FIVE** other varieties.

Send for Circular.

A. HANCE & SON,
Nurserymen and Florists, Red Bank, N. J.

STRAWBERRIES.

Plant early and secure a crop of fruit next season. **PARMELEES CRESCENT SEEDLING,** now ready to send by mail, or in pots at $3.00 per doz. Send for circular.
H. H. SMITH, West Haven, Conn.

STRAWBERRIES—Largest and Best. **Plant this Fall and save a year.** Capt. Jack, Great American, Crescent Seedling, and others, grown in Pots for Fall planting; will yield a full crop of Fruit next June; one year sooner than if planting is deferred till Spring.

RELIANCE and SUSQUECO
(Brandywine) Raspberries, 10 acres yielded $4,338.
Send for Catalogues.
WM. PARRY Cinnaminson, N. J.

Strawberry Plants in Pots.

Great American and Beauty, $3 per doz.; $12 per 100.—Felton's New Seedling Raspberries, Early Prolific and Reliance. Circulars free. SAMUEL C. DE COU, Moorestown, N. J.

Strawberry Plants by Mail in August.

A good assortment. Send for Price List to
PURDY & JOHNSON, Palmyra, N. Y.

New Seedling Strawberry, President Lincoln. 10 specimen berries, weighing 1 lb. 6 oz., received first 4 Premiums at the Horticultural Fair at Gilmore's Garden in June, 1867. **It is a vigorous grower and abundant bearer.** *One of the largest Berries ever exhibited.* Will be ready September 1st. Price per 100, $20.00; per doz., $3.00. JOHN MOLLOY, Florist, West Farms, N. Y. Orders received at James Fleming's Seed Store, 67 Nassau St., New York.

PLANTS BY MAIL | Strawberries, old and new sorts, Wilson, Cheney, Prouty, Duncan, Longworth's Prolific, Boyden No. 30, etc., *in August.* Send for Price List. Purdy & Johnson, Palmyra, N.Y.

GRAPES

Plants of **Best Quality. Largest Assortment** of **old** and **new** varieties. *Greatly* **reduced Prices.** Correspondence solicited. Price list **free.** Address

BUSH & SON & MEISSNER,
BUSHBERG, Jefferson Co., Mo.

CAMELLIAS, AZALEAS, ROSES, AND WINTER-BLOOMING PLANTS,

BY MAIL—POSTAGE PAID.

Send for Catalogue No. 6 with Supplement—contains two hundred and sixty-four collections of five, fifteen, and twenty plants each, your choice for one dollar. Address

ROBT. J. HALLIDAY, Baltimore, Md.

ROSES, Send for List. Over 100 sorts, strong pot plants, mostly in bud, only $5.00 per 100.
ENNIS & PATTON, Clinton, Ia.

PERUVIAN GUANO.

IMPORTED DIRECT FROM PERU BY
HOBSON, HURTADO & CO.,
Agents of the Peruvian Government, New York.

No. 1 Peruvian Guano, Standard, sold in Bags as landed from vessel, guaranteed to contain **10 per cent** Ammonia.

No. 1 Peruvian Guano, Lobos, guaranteed to contain on an average **6 per cent** Ammonia. Lobos Guano has a larger proportion of **Phosphoric Acid** and **Potassa** than the more highly ammoniated grades. It is the best and cheapest General Fertilizer sold in this country.

No. 1 Peruvian Guano, Rectified. This grade is pure Peruvian Guano treated by Sulphuric Acid, and is sold according to its analysis. It is the most efficient of all Fertilizers.

No. 1 Peruvian Guano, Guaranteed. This brand designated pure and genuine Peruvian Guano free from Lumps and Stones and is in excellent condition for application by drill.

For Circulars and further particulars apply to
HOBSON, HURTADO & CO.,
No. 63 Pine St., New York.

CHAPMAN & VAN WYCK,

(Established 1849),
DEALERS IN
PERUVIAN GUANO
EXCLUSIVELY,
170 Front Street, New York.

CHEAPEST FERTILIZER BECAUSE THE BEST. PREMIUM BONE

Grows **WHEAT and GRASS, equal to manure,** at **Half the Cost,** and lasts twice as long.

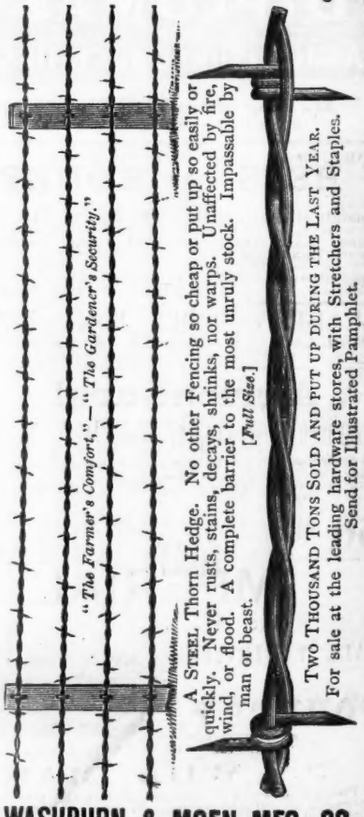
Farmers! Send questions on Postal Card to EXCELSIOR FERTILIZER WORKS, Salem, Ohio. Circulars Free.

NEW FRUITS.

We offer for the fall of 1867—**APPLES:** *Haas, Pewaukee, Walbridge, Telofsky;* **PEACHES:** *Amsden, Et. Beatrice, Foster, Steadley, Sleeper's Desert;* **PLUMS:** *Wild Goose, Newmans, De Caradeuc;* **CHERRIES:** *Large Montmorency, Louis Philippe.* Also our usual large stock of Apples, Crabs, Peaches, Plums, Cherries, Currants, Gooseberries, Raspberries, &c., &c. Correspondence solicited.
HEIKES NURSERIES CO., Dayton, Ohio.

MONEY *Made rapidly* with Stencil and Key Check Outfits. Catalogues and Samples FREE. S. M. SPENCER, 112 Washington St., Boston, Mass.

Patent Steel Barb Fencing.


"The Farmer's Comfort," — "The Gardener's Security."
A STEEL Thorn Hedge. No other Fencing so cheap or put up so easily or quickly. Never rusts, stains, decays, shrinks, nor warps. Unaffected by fire, wind, or flood. A complete barrier to the most unruly stock. Impassable by man or beast.
[Full Size.]

TWO THOUSAND TONS SOLD AND PUT UP DURING THE LAST YEAR.
For sale at the leading hardware stores, with Stretchers and Staples.
Send for Illustrated Pamphlet.

WASHBURN & MOEN MFG. CO.
Worcester, Mass.
Sole Manufacturers east of Chicago.
Warehouse: 42 CLIFF ST., NEW YORK.

GLOBE PLOW WORKS.

ALEXANDER SPEER & SONS,

Manufacturers of every description of **Plows, Plow Castings, Cultivators, Potato Diggers,** and **Harrows.** Agricultural Steels a specialty, made to any shape fitted with or without bolts.

Works cor. Duquesne Way, Fifth St., and Cecils Alley, **PITTSBURGH, PENNA.**

HOLBROOK SWIVEL PLOW

Continues to be Unequalled.

Turns a furrow on level land equal to the best landside plow. *No dead furrows or ridges.*

Send for circular.

Manf'd only by **EMERY & SMALL,** Boston, Mass.

"ECLIPSE" PORTABLE FARM ENGINE.

(See illustration on page 240, June number.) Send for Centennial Judges' Reports, and catalogues of Eclipse Engines, Stationary Engines, Boilers, Saw-Mills, &c., to

FRICK & CO.,

WAYNESBORO, Franklin Co., Pa.

BOOKWALTER ENGINE.

Compact, Substantial, Economical, and Easily managed. Guaranteed to work well and give full power claimed. Engine and Boiler complete, including Governor, Pump, &c., (and boxing), at the low price of

3	Horse-Power.....	$242.00
4½	" "	283.50
6½	" "	343.50

☞ Put on Cars at Springfield, Ohio.

JAMES LEFFEL & CO.,

Springfield, Ohio,

or 109 Liberty St., New York City.

STEAM ENGINES

CLIPPER Vertical Engines, off and on wheels! Price on wheels, 6 Horse Power, $185. 8 Horse on wheels, Price $700. **Dry Steam** Horizontal Engines, 8 Horse Power Climax, on wheels, $925. Builders of Stationary Engines, 4 styles, from 6 to 20 Horse Power. Corlis's Engines, Extra Finish and cut off Engines. Crank Stationary, and Plain Finished Engines, Boilers, Circular Saw-Mills, &c. Successors to Utica Steam Engine Co., formerly Wood & Mann, Established 1857. We have the *largest* line of Engine Patterns in United States.

TAYLOR MANUFACTURING CO., Westminster, Maryland.

Good responsible Agents wanted.

Steam Engines

PORTABLE AND STATIONARY.

ALL SIZES.

Safe, Durable, Effective.

SEND FOR CIRCULAR.

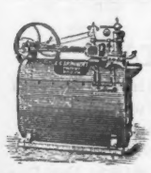
BLYMYER MFG. CO., CINCINNATI, O.

GEORGE PACE & CO.

No. 5 N. SCHROEDER ST., BALTIMORE, MD.

Patent Portable & Stationary Engines

Patent Circular Saw Mills, Gang, Muley & Sash Mills, Grist & Flour Mills, Water Wheels, Shingle, Barrel & Woodworking Machinery, Tanite Emery Wheels and Grinders, Saws, Mill Supplies, &c., &c. SEND FOR CATALOGUE & PRICES.



SKINNER PORTABLE ENGINE

2½ to 10 H. P.

Made by Special tools.

All parts duplicated.

Send for circular.

SKINNER & WOOD, Erie, Pa.

The Best Fanning Mill in the World.

BUY THE A. P. DICKEY Fanning Mill.

No good Farmer can afford to market dirty grain.

A moderate quality of grain, well cleaned, brings a better price than the nicest grade in dirty condition.

Address **A. P. DICKEY, Racine, Wis.**

THE GILPIN SULKY PLOW.

Constructed entirely of iron and steel. Easily operated entirely by *one lever.* Simple, strong, durable. Performs better work in unskilled hands than a skillful plowman can do with walking plow. 7,000 sold and in use in two years, giving unbounded satisfaction. Gold Medal at Illinois State trial 1874, and Indiana State trial 1876, the two highest ever awarded sulky plows.

R. H. ALLEN & CO., 189 Water St., New York, Agents.

DEERE & CO., Moline, Ills. Established 1847. Manufacturers of Gang Plows, Cultivators, and Steel Plows of all sizes, especially adapted to sticky soils. Send for circulars.

CHAMPION FANNING MILLS.

Largest Fanning Mill Factory in America. We make

5 Sizes for Warehouse, Elevator & Farm Use.

Separates No. 1 and 2 Wheat at one operation.

With attachment cleans and separates Clover and Timothy Seeds at one operation.

Has also a perfect Flax Seed rig.

Excels for Castor and White Beans.

BLAKE, BEEBE & CO., Racine, Wis.

HARRISON'S MILLS

Grand Medal at Centennial.

Standard Flouring Mill.
Scourer, Grinder and Bolter.
8 feet long by 4 feet high.
Runs with belt 4 inches wide.
Flours 3 to 6 bushels per hour.
Has double ventilating bolter.
For flour, middlings and bran.
Gives every one his own grist.
Makes the best flour and yield.
Is a reliable flouring mill.

Standard Grinding Mill.
For all substances wet or dry.
Built of burr stone and iron.
For heavy or light power.
Capacity of 20 inch stones.
Equal to any larger size.
Thickest French burr stones.
Double discharge spouts.
Adjustable babbitt boxes.
Solid self-adjusting burrs.

Centennial Judges award medal on ☞ *these portable, vertical mills for solidity and good workmanship, economy and adaptability.* ☜

EDWARD HARRISON, NEW HAVEN, CONN.

BRADFORD MILL CO.

Successors to Jas. Bradford & Co.

MANUFACTURERS OF

French Buhr Millstones, Portable Corn & Flour Mills, Smut Machines, etc.

Also, dealers in Bolting Cloths and General Mill Furnishing.

Office & Factory, 158 W. 3d St.

CINCINNATI, O.

J. R. Stewart, *Pres.* W. R. Dunlap, *Sec.*

☞ PRICE-LISTS SENT ON APPLICATION.

ESTABLISHED IN 1844.

SAW MILL FOR THE PEOPLE.

THIS patent portable Muley Saw Mill is adapted to any locality, will saw any kind of logs, and will do as much work (power and hands being considered) as the best Circular Mills. Its frame, head-blocks, and working parts are of the most substantial and permanent kind, being made entirely of iron and steel. It is usually set up and started in from one to two days time. It is generally driven by threshing engines of not exceeding ten horse power. It cuts from 2000 to 4000 feet of inch lumber per day. The Mill and Engine may conveniently be operated by two men. Send for circular.

INDIANAPOLIS IND. **CHANDLER & TAYLOR.**

THE SILVER & DEMING FEED CUTTER

Has no superior in the market.

Celebrated for its great capacity, ease of running, and its adaptability to all kinds of work. Our **"Improved Safety Fly Wheel"** is the only successful device for preventing accidents so common to Power Feed-Cutters.

Send for circulars giving prices and full particulars.

Man'd by **Silver & Deming Mfg Co., Salem, Ohio.**

FOR SEEDS AND BULBS OF CALIFORNIA FLOWERS, address J. B. HICKMAN, South San Juan, San Benito Co., Cal.

THE NEW YORK PLOW CO.,

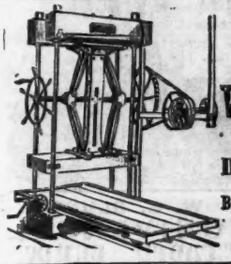
33 Beekman St., New York,

Manufacture **Family** Cider and Wine Mills, $15 and $18. Also **Union** Cider Mill; makes very soft, adhesive pomace, better than grated. Turns easy. Price $24 and $32.

Cider Press Screws, $13 & $16. *Presses,* $5 to $80; *Grinder separate,* $9.

The Nishwitz Wheel Harrow, draws steady, don't clog, with and without pole $28 and $30.

The Adamant Plows, hard metal, more durable, and cheaper to repair than Steel Plows, run steady, adjustable beams. Field Rollers reduced. Circulars free.



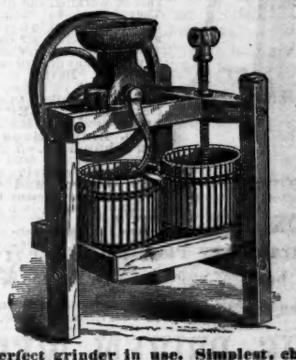
POWER Cider and Wine Press

WITH

Double Platform.

BOOMER & BOSCHERT PRESS CO., SYRACUSE, N. Y.

The Farmer's Favorite CIDER & WINE MILL.



Only perfect grinder in use. Simplest, cheapest and best Mill made.

Send for Illustrated Circular.

HIGGANUM MANUFACTURING CO., HIGGANUM, CT.

MEDAL MACHINES.

New York State Agricultural Works.

First Premiums at all Competitive Trials.

Railway, Chain and Lever Horse Powers, Threshers and Cleaners, Threshers and Shakers, Clover Hullers, Feed Cutters, Wheel Horse Rakes, Horse Pitchforks, Shingle Machines, Straw Preserving Rye Threshers, Portable Steam-Engines, Cider and Wine Mills and Presses Dog and Pony Powers, etc., etc.

WHEELER & MELICK CO., ALBANY, N. Y.

Send stamp for Circular and report of Centennial trial.

Dodge Hay Press—Automatic Feed.

Puts 10 tons in a common car—Presses a car load a day—Portable as a wagon. Guaranteed.

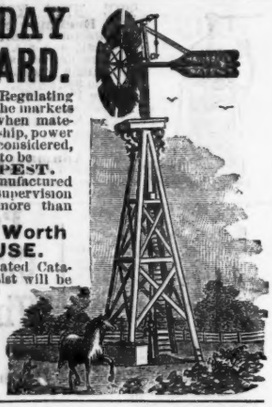
Address M. & H. M'F'G CO., Waterford, N. Y., or W. T. HANNA, 376 N. Water St., Chicago, Ill.

The Anti-Friction Hay Carrier

Saves labor and money. It is simple; the grappling positive; it runs on friction rolls, hence will come back on slight incline. The track is inexpensive; the carrier costs but a trifle; many hundreds are in use. No trouble about getting over high beams, or to the end of deep bays. Hay is dropped where wanted, and the work of mowing is reduced. Track should be put up now while barns are full.

Send for circulars and designs for tracking barn, to U. S. Wind Engine & Pump Co., Batavia, Ill., manufacturers of the Old Reliable Halladay Standard Wind Mill.

HALLADAY STANDARD.



The first Self-Regulating Wind Mill offered the markets of the world, and when material used, workmanship, power and durability are considered, it is acknowledged to be

THE CHEAPEST.

It has been manufactured under immediate supervision of inventor for more than twenty-two years.

$3,000,000 Worth NOW IN USE.

A 36 page Illustrated Catalogue with Price List will be sent free to all who make application.

Agents wanted in all unassigned counties.

U. S. WIND ENGINE & PUMP CO. BATAVIA, ILL.

W. S. BLUNT'S UNIVERSAL FORCE PUMPS.

Secured by letters patent.

These pumps have enormous power, and are for the house or for **out-door wells** of any depth. They are constructed with special regard to strength, ease of working, and durability. They can be immediately changed from lift to force pumps, and the air chamber can be revolved, so as to allow the handle to work at any desired angle with the spout. Having close tops, they cannot be tampered with. Attention is called to our new elegant pattern **DEEP WELL non-freezing FIRE PUMP. Also, Blunt's Sand Vacuum Chambers.**—A complete protection against sand or gritty water in **dug or driven wells, pits, mines, and rivers. For hand or steam pumps,** all sizes, from 1¼-inch to 4-inch suction pipe.

Send for circulars to

NASON M'F'G CO., 71 Fulton and 71 Beekman St., New York.

Western Agency, **Newton & Hale, Chicago.**

Pacific Coast Agency, **Dunham, Carrigan & Co., San Francisco, Cal.**

THE DRIVEN WELL.

TOWN and COUNTY privileges for making **Driven Wells** and selling Licenses under the established **American Driven Well Patent,** leased by the year to responsible parties, by

WM. D. ANDREWS & BRO.,
NEW YORK.

GARDEN ENGINE AND FIRE EXTINGUISHER.—Protects Buildings from Fire, and Trees, Vines, etc., from Insects. Throws water 50 ft. Easily carried. No Dwelling, Country Home, or Factory should be without the Fountain Pump. Send for large Illustrated Circular. J. A. WHITMAN, Sole Proprietor and Manufacturer, Providence, R. I.

THE CELEBRATED Dexter Spring

Is one of those inventions that commends itself to the **PRACTICAL MAN** as the **COMMON-SENSE SPRING,** being a side-spring without the unpleasant and dangerous side motion of the Concord, and obviating the jerking of the Elliptic. Being without perch, gives independent action to each wheel, making them much more durable. The **SPRINGS** are made of special **CRUCIBLE STEEL,** and are fully warranted.

The **DEXTER** supplies a want long felt by the **Farmer, Business Man,** and **Physician,** as it gives them the easiest riding and most durable **SPRING VEHICLE** known, and much less liable to break than the ordinary spring, on account of quality and form.

Please examine carefully the editorial and advertisement in Dec., 1876, *American Agriculturist,* and send for circular to

DEXTER SPRING CO.,
Hulton, near Pittsburgh, Pa.

SOMETHING NEW.—The Champion Lock Lever Wagon Jack. Sample by express $1. Circulars for stamp. J. H. DAVIS, Box 58, Warren, Ohio.

BARLOW'S INDIGO BLUE. | **THE FAMILY WASH BLUE.** D. S. WILTBERGER, Proprietor. 238 North Second St., Philadelphia.

AUTOMATIC WAGON BRAKE

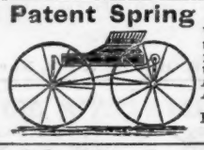
The most powerful self-acting brake made, and yet is more simple and complete than any ever introduced for general use. The Brake has been fully endorsed by every farmer who has seen it operate. W. A. Armstrong, Sec'y Elmira Farmers' Club, writes: "A Committee of the Elmira Farmers' Club, consisting of Chas. Heller, John Bridgman, D. T. Billings, S. M. Carr, and M. H. Thurston, gentlemen fully competent to make intelligent judgment, gave the brake careful trial Aug. 21st, and reported unanimously: It is the best brake we have ever seen—prompt in its action—effective when required, and is exceedingly desirable for all farmers on hilly farms." See Illustration in Aug. *Am. Agriculturist.* Town, County, and State rights for sale. Please say where you saw this.

D. L. MULFORD, General Agent,
TIOGA, TIOGA CO., PA.

Rice's Patent Spring Brace.

"THAT ALTERS THE CASE."

Takes well everywhere.



Will do twice the service and ride easier. $3 to $5 put on. Agents wanted. Address C. L. RICE, Box 884, Scranton, Pa.

A long felt Need supplied.

The **SENSIBLE COLLAR PAD** is just what its name suggests, a perfect Leather Pad, combining the advantages of Firmness, Elasticity, and the medicinal properties of tanin. No pad ever before introduced gives such universal satisfaction. They are warranted to cure sore necks and to prevent galls. Ask your harness maker for them. Manufactured by the SOLE LEATHER PAD CO., of Olean, N. Y.

GOODELL COMPANY,

Sole Manufacturers of Saratoga Potato Peelers & Slicers, Bay State Potato Parers, Bay State, Mammoth Bay State No. 1, Mammoth Bay State No. 2 Paring, Coring & Slicing Machines, Turn-Table & Lightning Apple Parers, Lightning Peach Parers, Family Cherry Stoners, Cahoon Broadcast Seed Sowers, &c. **Antrim, N. H.**

500 AGENTS WANTED Immediately, to sell very desirable NEW PATENT articles, and the new combined VICE and **JOCKEY WRENCH.**

Works in peculiar corners, where other Wrenches cannot go. Adapted to agricultural machines and fits all nuts on wagons and carriages; the *axle* nut *included.* No handling the nut or *soiling* the *hands* when oiling *carriages,* and for tightening or removing ox *buttons* it has no equal. By mail, post-paid, 75c. G. J. CAPEWELL & CO., Cheshire, Ct.

COMMON SENSE
ROCKING CHAIRS
SOLID COMFORT
ALL AROUND THE HOUSE
FOR SALE BY THE TRADE: SEND STAMP FOR ILLUSTRATED PRICE LIST TO
F. A. SINCLAIR—MOTTVILLE N.Y.

Keep's Custom Shirts made to measure.
The very best, 6 for $9, delivered free everywhere.
Keep's Patent Partly-Made Dress Shirts.
The very best, 6 for $7, delivered free everywhere.
An elegant set of Gold plate collar and sleeve Buttons given with each half dozen Keep's shirts.
Samples and full directions mailed free to any address.
Merchants supplied at a small commission on cost.
Trade circulars mailed free on application.
Keep Manufacturing Co., 165 Mercer St., New York.

TO THE LADIES!!

BROWN'S FRENCH DRESSING

will make Ladies' and Children's Boots and Shoes that have become rough and red, and Ladies' Traveling Bags which look so old and rusty that they are ashamed to carry them, look just as good as new. It will not rub off or smut when wet. Softens the leather.

No lady will be without it after one trial. Beware of imitations and counterfeits. For sale everywhere.

B. F. BROWN & CO., Boston, Mass.

Hires Root Beer Package

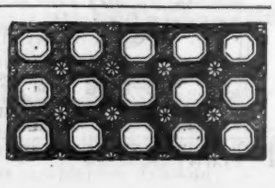
Makes 5 Gallons of Delicious Root Beer for 25 cts. Made from Pipsissewa, Sarsaparilla, Dandelion, &c.

To Farmers and Laboring Men it will be found an agreeable, refreshing Beverage during the Summer months.

Manufactured only by C. E. HIRES, Wholesale Botanic Druggist, No. 9 Letitia St., Philadelphia, Pa.

Ask your Druggist for it.

CEILING FELT for Rooms in the place of Plaster. **FELT CARPETING** 30 to 45 cts. per yd. For Circular and Sample. Address, C. J. FAY, Camden, N. Jersey.



BLAKE'S PATENT Stone and Ore Breaker

Crushes all hard and brittle substances to **any required size.** Also, any kind of STONE for ROADS and for CONCRETE, &c. Address BLAKE CRUSHER CO., New Haven, Conn.

American Fence Manufacturing Company

furnishes the best and cheapest fence manufactured. *See April number* of the *American Agriculturist.*

Send for descriptive Circular.

Office, 86 Mangin St., N. Y.

Prairie King Gang and Sulky PLOWS.

James J. H. Gregory, Marblehead, Mass., says: "It works remarkably well in rocky land. It will do as good work and much faster than an ordinary plow, without any more wear on the horses, and certainly with great comfort to the plowman. I shall want another one for Marblehead."

Dr. Geo. B. Loring, Salem, Mass., says: "The draft is very much less than of an ordinary plow, and in pulverizing the soil and leaving it in good condition, I have not seen its equal."

We are also Patentees and Manufacturers of **Pulverizing Attachment** for **Gang Plow, Champion Wheel Cultivator, Turtle Pulverizing Harrow, Flexible Smoothing Harrow Sub-Soil Plow, Eagle Corn Planter, Eagle Seed Drill, Victor Horse Hoe, Champion Horse Hoe, Clipper Wheel Hoe,** Call and see them or send for circular.

E. D. & O. B. REYNOLDS,
43 Chatham St., Boston, Mass.

NONPAREIL FARM & FEED MILLS.

Bone, Drug, and Spice Mills. 10 sizes, for Hand or Power. Conical French Burr Stone Flouring and Corn Mills.

☞ Were awarded highest Medal and Diploma at Centennial Exposition.

☞ Illustrated Pamphlet sent Free. Address, **L. J. MILLER,** 181 E. Front St., Cincinnati, O.

Cotton Seed Huller AND FEED-MILL COMBINED,

For Plantations and Oil-Mills. Used by Planters, the Oil-Mills in New Orleans and through the country. Send for Circulars and Judges Report. Pay for itself in a few weeks. D. KAHNWEILER, 120 Centre St., New York.

THE BRAHMA FOWL.

By LEWIS WRIGHT,

Author of "The Practical Poultry Keeper," and "The Illustrated Book of Poultry."

CONTENTS.—Chapter I. The Origin of Brahmas.—Chapter II. Economic Qualities and Management of the Brahma as a Stock Fowl.—Chapter III. Characteristics of Dark and Light Brahmas as Bred for Exhibition.—Chapter IV. The Practical Breeding, Rearing, and Management of Brahmas for Exhibition.—Chapter V. The Judging of Brahmas.

Elegantly Illustrated with numerous colored lithographs and wood cuts. PRICE, POST-PAID, $2.50.

FARM TALK:

A Series of Articles in the Colloquial Style, Illustrating Various Common Farm Topics.

By GEO. E. BRACKETT.

CONTENTS.—Guess Farming; Pedigree Corn; About Haying; Fancy Farmers; When to sell Produce; Butter Making; Getting Ready for the Cattle Show; Agricultural Colleges; Apple Trees and Insects; Middle Men; Taking the Papers; The 'Ologies; An Evening's Chat; Planting for Posterity; Road Making and Breaking; In the Barn; How Trees Crow; Pigs and Poultry; Farm Fences; Out in the Fields.

Price, post-paid, paper covers, 50 cts.; cloth, 75 cts.

Either of the above books sent post-paid on receipt of price, by

ORANGE JUDD COMPANY,
245 BROADWAY, NEW YORK.

For Carpenters and Builders.

Valuable Architectural Books

Atwood's

Country and Suburban Houses.

Illustrated with about 150 engravings. Hints and Suggestions as to the General Principles of House-building, Style, Cost, Location, etc. Post-paid, $1.50.

Monckton's

National Stair-Builder.

Is a complete Work on Stair-Building and Hand-Railing. Fully explained and illustrated by large scale diagrams in two colors, with designs for Staircases, Newels, Balusters, and Hand-Rails. Royal Octavo. Post-paid, $6.00.

Monckton's

National Carpenter and Joiner.

A complete work, covering the whole science of Carpentry, Joinery, Roofing, Framing, etc., fully explained and illustrated by large scale diagrams in two colors. Royal Quarto. Post-paid, $6.00

Hussey's

National Cottage Architecture;

OR

Homes for Every One.

With Designs, Plans, Details, Specifications, and Cost; with Working-Scale Drawings complete, so that houses may be built direct from the book. Adapted to the popular demand for practical, handsome, and economical homes. Royal Quarto. Post-paid, $6.00.

Hussey's

Home Building,

From New York to San Francisco.

It is EXTENSIVELY ILLUSTRATED, containing 42 Plates of Perspectives, with Plans of 45 Original Buildings, of as many classes, and their cost; and an INVALUABLE TABLE of materials, labor and prices at about 400 cities, towns and hamlets, from the Atlantic to the Pacific. Also, complete and ELABORATE SPECIFICATIONS of materials and labor; merchandise, and where it may be procured. It also contains original descriptions and valuable statistics for 1876 of over 250 Cities and Towns. By E. C. Hussey, Architect, author of Hussey's National Cottage Architecture, &c. Post-paid, $5.00.

Woodward's

National Architect.

1,000 Designs, Plans, and Details, for Country, Suburban, and Village Houses; with Perspective Views, Front and Side Elevations, Sections, Full Detail Drawings, Specifications, and Estimates. Also, Detail Drawings to Working Scale, of Brackets, Cornices, French Roofs, Sectional and Framing Plans of French Roofs, Dormer-Windows for French Roofs, Bay-Windows, Verandas, Porches, Plaster Finish, Cornices, Ceilings, Hard-wood Mantels, and all that is required by a Builder to design, specify, erect, and finish in the most approved style. One superb quarto volume. Post-paid, $12.00.

Woodward's

Cottages and Farm Houses.

188 Designs and Plans of low-priced Cottages, Farm Houses, and Out-Buildings. Post-paid, $1.50.

Woodward's

Country Homes.

150 Designs and Plans, with Description of the Manner of Constructing Balloon Frames. Post-paid, $1.50.

Woodward's

Graperies and Horticultural Buildings.

Designs and Plans of Hot-Beds, Cold-Pits, Propagating Houses, Forcing Houses, Hot and Cold Graperies, Greenhouses, Conservatories, Orchard Houses, etc., with the various modes of Ventilating and Heating. Post-paid, $1.50.

Woodward's

Suburban and Country Houses.

70 Designs and Plans, and numerous examples of the French Roof. Post-paid, $1.50.

Jacques'

Manual of the House.

How to Build Dwellings, Barns, Stables, and Out-Buildings of all kinds. 126 Designs and Plans. Post-paid, $1.50.

Wheeler's

Rural Homes.

Houses suited to Country Life. Post paid, $2.00.

Wheeler's

Homes for the People.

100 Original Designs, with full Descriptions, and Constructive and Miscellaneous Details. Post-paid, $3.00.

Harney's

Barns, Out-Buildings, & Fences

Containing Designs and Plans of Stables, Farm-Barns, Out-Buildings, Gates, Gateways, Fences, Stable Fittings and Furniture, with nearly 200 Illustrations. Royal quarto. Post-paid, $6.00.

Cummings'

Architectural Details.

387 Designs and 967 Illustrations of the Various Parts needed in the Construction of Buildings, Public and Private, both for City and Country. Also, Plans and Elevations of Houses, Stores, Cottages, and other Buildings. Royal Quarto. Post-paid, $10.00.

Croff's Progressive

American Architecture.

This work presents, in illustration, a great variety of CHOICE AND ORIGINAL MATTER, embracing Elevations and Plans of Dwellings of various styles, costing from one thousand to one hundred thousand dollars. Store Fronts, School, Bank, and Church Buildings, etc. Royal Quarto. Post-paid, $10.00.

Lakey's

Village and Country Houses.

Or, Cheap Houses for All Classes, comprising eighty-four pages of designs. The object, in almost every instance of these designs, has been to secure as large an amount of space and comfort as was possible with the least expenditure of money, without neglecting the exterior features of each building. Royal Quarto. Post-paid, $6.00.

Eveleth's

School-House Architecture.

A new and original work, containing Seventeen Designs for School-houses, Sixty-seven Plates with Perspectives, Elevations, Plans, Sections, Details, Specifications, all drawn to working scale, with methods of Heating and Ventilation. Large Quarto. Post-paid, $6.00.

Copley's

Plain & Ornamental Alphabets

Giving examples in all styles, together with Maps, Titles, Borders, Meridians, Ciphers, Monograms, Flourishes, etc., adapted to the practical use of Surveyors, Civil Engineers, Draughtsmen, Architects, Sign Painters, Schools, etc. Post-paid, $3.00.

ORANGE JUDD COMPANY, 245 Broadway, New York.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Continued from p. 289.

Training Shepherd Dogs.—"R. M. L.," Alexandria, Va. Shepherd dogs can only be trained by an experienced shepherd, along with a flock of sheep. The best shepherd dogs are brought up with the flock, and bred and raised by the shepherd. We believe that there are a few persons who make a business of rearing and training sheep-dogs, but unless they advertise, we can not learn where they are.

Dog-Powers for Churns.—F. S. Wood, Westminster, Mass. There are several good dog treadpowers made for use in churning, costing about $25.00. They are very useful adjuncts to the dairy, and may be operated by a dog, sheep, or calf. A heavy wether makes a very tractable motive power, and is more effective and profitable than a dog, because it is heavier; besides it yields a yearly fleece, and when done churning, gives a carcass of mutton.

A Horse that will not Back.—"J. G. S.," Derby, Conn. In training a horse, it should be taught to back, else when required to do this, it may not understand what is wanted. If it does not know how to back, it should be taught by first backing without a wagon, so that it will move backwards at the word. Then it may back an empty wagon, and gradually learn to back the heaviest loads. A well-trained horse is able to back as much or more than it can draw.

Machine for Harvesting Beans.—"J. T.'" Miami Co., Ohio. There is no machine made to harvest beans. This is a crop that will probably be harvested by hand for some time yet.

Cement for Drain-Tile.—"J. M. N.," Girard, Ill. The proper portion of sand to hydraulic cement for making drain-tile, is four parts of the first and one part of the latter. The sand should be coarse, sharp, and perfectly clean.

Potato Beetles and Flax.—A correspondent at Ashland, Ky., writes, that a number of gardeners at that place have tried sowing flax-seed between the rows of potatoes, and report it as the most successful method yet found, and that "the potato-bug leaves the vines without further ado." This comes from a highly respectable source, and we give it as it comes to us.

Quidding in a Horse.—"J. C. C.," Dodge Co., Wis. Quidding is the spitting out or dropping of the food, especially hay, after it has been chewed by a horse. This is caused generally by some soreness of the throat, which makes the horse averse to swallowing any bulky food. The horse should be examined, and inflamed patches at the root of the tongue and back part of the mouth looked for. There may also be soreness of the gullet, evinced by flinching on pressure of the throat at the upper part, or the glands may be swollen. In either of these cases, the parts, where they can be reached, may be dressed with a mixture of honey or molasses, one ounce, and finely powdered chlorate of potass, one dram. The mixture to be applied with a brush. Half an ounce of sulphite of soda may be given in the feed for a few nights.

Feed for Increase of Milk.—"S. W. W.," Long Branch, N. J. There is no better feed to induce a large flow of milk than wheat bran, or wheat middlings. This should be scalded, and made into a thin gruel, and given as a drink. A handful of salt should be put into each pailful. Buckwheat, ground with bran and oats, makes a rich feed, and is productive of milk, but if butter is made, neither the quality nor the color is good.

Smut in Wheat.—"T. K. M.," Mercer Co., Va., asks, "What is the cause of smut in wheat, and what is the remedy for it?"—The "cause" of smut is quite similar to the "cause" of wheat. In both cases you sow seeds, or what corresponds to seeds; in one instance wheat, and in the other a very minute plant that lives upon the wheat, is the result. The diseases of grain known as smut, rust, mildew, and in England as bunt and brand, are due to minute fungi, of several species, which, while they have very little in appearance in common with ordinary plants, are yet well recognized mem-

bers of the vegetable kingdom, though of only microscopic size. These plants are multiplied by little germs, so to speak, of exceeding fineness, each grain of which is capable of performing the office of a seed and multiplying the kind of fungus. These reproductive grains, or *spores*, are so minute as to readily escape observation, and one may sow enough with his seed-wheat to stock his field with the pest, without noticing their presence. The most common method of introducing either of these fungi is with the seed, and it is a safe precaution to destroy such spores as may be adhering to the wheat to be sown One method is, to give the seed two or three successive washings in strong brine, and to dry with air-slaked lime. Another is, to make a strong solution of Blue Vitriol, or Blue-stone, (Sulphate of Copper), about 2 lbs. to the gallon of water. Sprinkle the wheat with this, stirring so as to coat every grain completely with the liquid, and then spread it where it will dry quickly.

Polled Angus Cattle.—"J. C. T.," Mercer Co., Pa. The only herd of polled Angus Cattle we know of in the United States, is that of Mr. George Grant, of Victoria, Kansas.

Hay and Grain Caps.—"A Young Farmer," Hart, Mich. The best hay caps we have used were squares of 40 inches wide sheeting of the coarsest and heaviest kind. Oiling is not advisable. It tends to rot the cloth, instead of preserving it, and causes it to crack where it is folded. The unbleached cloth will turn a steady rain for 24 hours, if the cap is not permitted to have a hollow in the top.

Size of Concrete Walls.—"S.," St. Charles, Mich. The basement walls for a three-story concrete house, should be 16 inches thick, the upper walls may be 12 inches.

Distemper in Horses.—"L. Z.," Otis, Ind. The disease known as distemper, is one to which all horses, at some time or other, are subject, but generally while they are young. It is an eruptive fever in character, something like the measles in the human race. Its chief symptom is a swelling of the soft parts between the branches of the lower jaw, and the salivary glands, sometimes forming abscesses, accompanied with some fever, and soreness of the throat. It is best treated by good nursing, and no medicine; giving them oatmeal or linseed-meal gruel as the only food or drink, and, if the fever is high, two or three drams of Saltpeter may be dissolved in the gruel once a day. The disease is properly called "strangles." If the swellings appear so large as to threaten suffocation, they may be opened with a lancet, or treated with the ointment of Cantharides or Spanish flies. Law's "Farmers' Veterinary Adviser" is an excellent book on diseases of horses and cattle.

Saddler's Wax.—"Vandalia." Saddler's wax is made by melting common black pitch with enough tallow to soften it, so that it will work easily. Shoemakers' wax is made in the same manner.

Clovers.—T. Lee, British Columbia. The specimen appears to be only a vigorous form of the Red Clover—*Trifolium pratense*. Some varieties appear to be only biennial, while other forms are perennials of short duration, lasting three or four years, much depending upon whether it is allowed to go to seed or not. If you are anxious to repay the favor you think you have received, do a good-natured thing to the next person who needs it, and keep the account running...."F. W. C.," Mars Bluff, S. C. Buffalo Clover, *Trifolium reflexum*, a native species, which is an annual, or, at most, biennial. Its agricultural value not tested.

Blue Grass not a Curse.—Some months ago we gave an item from a correspondent in Wash. Ter. who wished to know how to get rid of Blue Grass, which he regarded as a great curse. As this grass is usually welcomed and valued, we supposed he must be mistaken in the identity of the plant, and called something besides *Poa pratensis* by that name. Since then we received a specimen from Fred. F. Lane, living in another part of the territory, which shows the species generally known as Blue Grass to be abundant there, but Mr. L. looks upon it "as far removed from a curse."

Nitrate of Soda on Potatoes.—"G. R.," in the "N. E. Farmer," says on the advice of this journal, he bought 300 lbs. nitrate of soda for potatoes, an ounce to the hill. He says: "We furrowed *deep*, dropped the nitrate, covered it, and then dropped and covered the potatoes. Result—about one-fifth of the potatoes never came up, and many that did looked as if they had a hard struggle for life."—The conclusion jumped at is not warranted. If the nitrate was sufficiently spread and covered with two inches or more of soil, it could not injure the potatoes, and the effect must be good, judging from very large and wide extended experience. If dropped in a mass, and slightly covered, it may have had a slightly injurious effect. Wet weather, or deep planting, or both, may have been the trouble in this case, if the nitrate was not placed, in a mass, too near the seed. It is always well to take into account all the circumstances, in arriving at conclusions.

We Could'nt Attend.—Mr. and Mrs. M. kindly sent us an invitation to attend a "Barn Party" to be held at a farm with a very pretty name. But as town, county, and even State were omitted, we could neither attend nor send our "regrets."

Pleasure and Business, are combined in a rather unusual manner by a nursery firm in Tennessee, who invited their friends to participate "in the festivities of an old-fashioned Fourth of July Revival" at their nurseries on the 4th. The barbacue was promised to be the best that "the country could afford," while there was music, and of course speeches, and remarkable speeches, too, "from speakers who are always original and never dull, in short, a literal feast of reason and flow of soul"—a remark which, if we mistake not, has been made once or twice before. But more than that, there was "an interesting horticultural exhibition thrown in." Certainly a most taking programme.

"Gardener," and Many Others.—We have frequently stated that we do not reply to purely personal questions—such as are of no interest to any other person—in the paper; we have also tried to make the fact generally known, if repetition will do it, that we do not notice letters that lack the name of the writer. We again present these two points not only to "Gardener," but to many others, who expect us to occupy space with answers that would be of use to themselves only—and to many more who, for some reason, think an editor will waste his time with nameless correspondence. Had "Gardener" enclosed a Postal Card with his name upon it, he would have had an answer the next day.

The Texas State Fair.—The Capital State Fair Association is to be commended, as it sent out its announcement in April to the effect that the third Annual Fair will be held at Austin, Travis Co., on the 2nd Tuesday in October, and continue for five days. E. C. Bartholomew, Austin, Tex., is Secretary, from whom premium lists and information may be obtained.

A Question of Irrigation.—"J. P. L.," La Platte Co., Col. The proper condition of moisture in a soil for plowing, is when it will easily fall apart when pressed into a ball in the hand. If it sticks, or is pasty, the soil is too wet. If there is little time to plow in the spring after frost has disappeared, we would suggest that the ground be thoroughly irrigated in the fall or in spring, when it can be plowed early and be ready to sow very quickly when the time comes. Many such questions as these are considered in a new work on irrigation, entitled "Irrigation for the Farm, Garden, and Orchard," by Henry Stewart, and published by the Orange Judd Co., price $1.50.

The Best Time to Cut Timber for Rails.—"J. W. W.," Gilmore Mills, Va. We would prefer to cut timber for fence posts and rails, or boards, in August; then let the trees lie until the foliage has dried, by which time the timber will have lost the most of the sap, and split or saw up the logs before the timber becomes frozen.

Boats with Smooth Sides.—"H. H. B.," Chappaqua, N. Y. Instead of making the sides of a boat with lapped streaks, the streaks may be jointed either by beveling the edges to make a joint, or by rabbeting them. In either case the sides would be smooth. In making the ends of lap-streaks, the edges of the boards are beveled off so as to bring the ends smoothly together on the stem and stern. A boat 12 ft. long and 3 ft. beam may be about 18 or 20 inches wide at the stern.

Farm Engines.—"C. H. S.," Fond du Lac Co., Wis. It would not only be convenient but profitable for two neighbors to own a portable-farm steam engine for thrashing and grinding. An engine could do the work of four or five farmers, and the expense might be thus divided between them. Co-operation of this kind might be easily carried out very extensively amongst neighbors, who could, in this way, jointly own male live stock for breeding purposes, reapers, thrashing-machines, feed-mills, and other costly machinery.

The American Pomological Society.—Every fruit grower should recollect, and arrange to be present at the Sixteenth Meeting of the Society at Baltimore, on Wednesday, Sept. 12th. Thos. P. James, Cambridge, Mass., is Treasurer. Sending him $4 constitutes one a member, and entitles him to the volume of Proceedings. Fruit for exhibition is to be sent to the Society, care of Wm. B. Sands, Baltimore, Md.

The Scientifics.—The Society which rejoices in its full name of "The American Association for the Advancement of Science"—a name which its members rarely use without some how abbreviating it—will hold its 26th meeting at Nashville, Tenn., on the 29th of the present month, (Aug.) The most important office, that of Permanent Secretary, is filled by F. W. Putnam, of Salem, Mass., who gives all needed information, etc. These meetings are usually most enjoyable, and there is not so strict an attention to business as to prevent the doing of proper justice to the various entertainments and excursions made and provided.

Trow's New York City Directory.—Directories belong to a style of literature, not much valued for evening reading, yet very useful at times. The Directory of a city like New York forms an ample volume, and to issue a yearly edition, completely revised, and including all the additions and changes, requires a small army of helpers, while the one who directs them must exercise no little generalship. The volume for the present year is now the 91st issue, and though every now and then competing directories are started, the shortness of their lives shows that the citizens of New York are too well satisfied with the accuracy and usefulness of Trow's to want any other.

Not Exactly a Clover.—"E. A. A.," Chambersville, Ark. The specimen is *Medicago denticulata*. The Medicks are nearly related to the Clovers, but differ, among other things, in having a twisted pod. Lucern, or Alfalfa, is a perennial species of *Medicago* (*M. sativa*). Yours is an annual, and is highly esteemed in California, where it is extensively naturalized, and goes by the name of "Burr Clover."

Mignonette and Bees.—"E. D. K.," Texas. Mignonette is classed as one of the honey-yielding plants, but experienced bee-keepers are doubtful if any such plants may be grown with profit solely for the purpose of supplying honey. White clover, which yields the finest of all, and buckwheat, which yields so abundantly, are cultivated for other uses, and the honey obtained from them is clear gain; but it becomes another matter when land and labor are devoted to a plant from which the sole return will be honey. The seeds of Mignonettes and the other plants named, may be had at wholesale of any of our importing seed houses. Prickly Comfrey seed has not as yet been offered by our dealers—only the sets or root-cuttings.

The Wisconsin Horticultural Society.—A neat volume, sent by the Secretary, F. W. Case, contains the doings of last year and of the annual meeting in Feb., 1877. A noticeable feature of this report is the number of contributions by ladies, no less than eight of the papers read at the annual meeting being by them. While some of the papers and discussions are of local interest, others are useful to horticulturists generally, and we congratulate the Society upon the healthful activity to which this volume bears witness.

Reduction of Bone with Acid or Soda.—"O. W. F.," Worcester Co., Mass. When bone is treated with sulphuric acid, (oil of vitriol,) the phosphate of lime of the bone is changed into a superphosphate, which is a combination of lime with twice as much soluble phosphoric acid as in the simple phosphate. When soda is used to reduce the bone, the equivalent of phosphoric acid in the bone phosphate is not changed. The superphosphate is more active, but not so lasting as the simple bone phosphate.

Sheep Growing for Profit.—A Reader, Chicago. The localities which have proved most favorable for sheep raising, are doubtless in that region covered by Western Kansas, particularly in the Arkansas Valley and Southern Nebraska, where the valley of the Platte offers an excellent field for shepherds. Sheep keeping is rapidly increasing in the localities mentioned. Stewart's Shepherd's Manual, price $1.50, contains full instructions and information on the choosing, rearing, and management of sheep.

Milking Tubes.—In giving an engraving of Pilling's Milking Tubes in the *American Agriculturist* of November, the slide was shown with the broad part downwards. In using these tubes, the broad part, which is a sliding shield, to prevent the tube from being inserted too far, should have the broad flange upwards. There is then nothing to hinder the easy and safe insertion of the tube into the teat. These tubes are very useful in case of garget of the udder, when milking is difficult or impossible without them.

Onions and Oranges.—The "Florida New Yorker," is a monthly journal, edited by Col. J. B. Oliver, and published at 21 Park Row, N. Y. It is especially devoted to setting forth the claims of Florida as a home for those who seek a mild climate, and always contains much that is of interest to those looking for information about the State. We learn from its last issue that onions have been found so profitable a crop, that parties are intending to cultivate them largely, and expect to become competitors in the trade now entirely in the hands of Bermuda growers. It is estimated that the onion is not only much more profitable than any other vegetable, but that it is "infinitely more remunerative" than oranges. The seed is sown in October, salt and ashes being the fertilizer used by some growers.

An Example.—A postal card from Va. reads: "Do you know of a firm in —— —— Co., N. Y., called ——. They offer great inducements in the shape of—— ——. Are they reliable? By answering the above in your paper, you will oblige a subscriber. W. A."—We give this as an example of dozens, if not hundreds, of similar questions, and to show our readers that it is exactly the kind that we can not reply to in the paper. Had W. A. left his signature in a legible condition, we should have dropped him a postal card, saying that we never before heard of the firm, but a line through his name prevents doing this. In any case, the request to "reply in the paper," is one that we can not comply with, as it is of interest to "W. A." only. Had we happened to know that the concern was a reliable one, we should not advertise them as such in this portion of the paper. We wish our friends would remember that such purely personal matters can not be answered in the *American Agriculturist*. We need much more space than we can find for replies of general interest, and this reason, if no other, would exclude them. But were it not for this, the fact that they are not matters proper for publication under any circumstances, would prompt us to take the same course. When we are able to answer such inquiries, we cheerfully do so, at once, provided we have the full address of the writer.

Goats and Goat's Hair.—"G. L. S.," Kendall Co., Texas. There is a market for goats' pelts in New York, Boston, Philadelphia, and Baltimore, where they are largely used in the tanneries. There is only a restricted market for goat's hair as yet, but it is quite probable that the use for this material will increase as the supply becomes larger and steadier. There is no book on the goat published in this country, but an English work, "The Book of the Goat," could be procured for $1.50. This gives information as to breeding, feeding, and rearing these animals.

Fertilizer for Potatoes.—"L. T. R.," St. Louis. It is impossible to say what is the best fertilizer for potatoes under all circumstances. The kind of soil has much to do with the choice. Upon heavy clay soil, barn-yard manure would undoubtedly be equal to any, but after some years of experimenting upon lighter soils, we find the best results, in every way, are gained from mineral fertilizers, such as superphosphate of lime and muriate of potash, or both mixed. The present season our best crop of potatoes is grown with the potato fertilizer of Bowker & Co., of Boston, prepared from the formula of Prof. Stockbridge. The portion of the crop manured with this fertilizer, (400 lbs. to the acre,) is better than that treated with good barn-yard manure.

Crevecœur Fowls.—"F. W. S.," Saratoga Co., N. Y. The Crevecœur fowls can be procured of the Fancier's Agency, Courtland St., New York. They are scarce birds.

Orchard Grass Seed.—"H. T. C.," Woodstock, Conn. Orchard grass ripens its seed in June, and should be cut when the seed is easily shelled by rubbing a head between the hands. It can be cut as any other hay, and thrashed either with the machine, the flail, or by laying a thick bed on the barn-floor, and driving a pair of horses over it. This last plan, although a very old one, is very cheap and effective, and there are times and places, when such rough methods may be used.

Fretting for a Farm.—"F. C. L.," St. Louis, Mo. We can not procure situations on farms for those who want them. These are difficult or impossible to procure, for the same reason that other situations are scarce. There are more laborers than places for them. Besides it is not so easy for a man that has been used to other business, to succeed at farming. The time is past when a man could hew a farm out of the woods with an axe, and cultivate it with a hoe. Social conditions have changed, and people now would think this intolerable. Hence our wood-land is remaining unsettled, and people go to the prairies, where the land is already cleared, and a farm is made without so much labor. We do not advise persons to leave a business in which they are successfully engaged, to enter into farming, merely because they have a bankering after a country life, or the passion for change grows strong upon them. "Let well enough alone." There is no life harder, or subject to more harrassing troubles and "botherations," than that of a farmer, who is industrious, and ordinarily fretful.

A Liniment for Beast (and Men).—"J. C. Y.," Tazewell Co., Ill. The basis of the liniments in general use is alcohol, turpentine, and some of the essential oils. In many of these the stimulating properties of the alcohol, or the turpentine, are doubtless frequently more effective, than those of the various added ingredients. In some experience around oil wells the writer found the crude petroleum very useful in cases, in which liniments are generally employed, and since then has always kept a supply about the stable. We have also used a preparation of the crude petroleum, made expressly for use in stables, by E. F. Houghton & Co., of Philadelphia. It is called Cosmoline, and is an effective application for galls, wounds, and such eruptive sores, as "grease in the heels."

Tobacco Culture.—"F. S. H.," Sterling, Kas. All the information about tobacco growing that can be gained from books, can be learned from a small book published by the Orange Judd Co., and will be sent by mail for 25 cents. The headquarters of the Western tobacco business is at St. Louis.

Feeding German Millet to Cows.—"F.," Ennis, Texas. Millet should be cut up in a fodder cutter, wetted and sprinkled with wheat bran, shorts, corn-meal, or cotton-seed meal, and a handful of salt for each cow, and fed. It will be consumed without waste.

Keeping Butter in Hot Climates.—"W. E. F.," Ennis, Texas. There is no way in which butter can be kept in warm climates without ice. All the milk coolers are managed with ice. A new system of setting milk, known as the Cooley system, is described in a small pamphlet by the Vermont Farm Machine Co., Bellows Falls, Vt. If ice can be procured, this method would be very valuable in Texas, as the cream can all be raised in six hours, or less.

Cancerous Growths in a Bull.—"P.," Thomastown, Conn. The so-called "warts" which you describe as being as large as a hen's egg, rough on the surface, soft, moist, bleeding, and foully smelling, are not warts, but cancers. They show a bad constitutional condition; the bull is unsound, and should not be used for breeding. They may be touched with pure carbolic acid and cauterized, and if there were but a few, they might be removed with the knife. When in large number, this operation would be too severe. At any rate, if repressed in one place, they would appear in another. The animal, so far as can be judged from your description of its condition, is practically worthless.

"Sacrifice of Sheep" in California.—Much unnecessary commiseration and surprise are manifested in various quarters, at what is called the enormous sacrifice of sheep in California. Whole flocks, numbering thousands, have gone to the kettle, to be boiled down into tallow. This fate is considered pitiable, and as a great loss. On the contrary, where sheep are kept for wool alone, and mutton has no sale, this is the usual end of the sheep. When past the profitable age for shearing, it renders up itself for tallow. In Australia millions of sheep are yearly thus disposed of, and sheep-growers have become wealthy in the business. The chief end of sheep-keeping is profit, and there is profit in boiling down an old ewe or ram for its fat; this, and the pelt, realize a handsome profit. The kettles necessary for this operation, are of immense size, holding several hundred sheep at one time. After the fat has been skimmed from the kettles, the flesh and bones are fed to hogs, so that there is no waste; the long boiling softens the bone, so that they are easily crushed. The pelts are salted, and packed for shipment to a market for tanning.

Cure for Spavin.—"P. T. J.," Philadelphia. Spavin is a disease which may sometimes be cured, by the treatment exactly proper in each peculiar case, or all treatment may fail. Sometimes blistering is called for, and sometimes it is improper. There are different kinds of spavin. Bog or blood-spavin may be cured by cold dressing and rest, but it will generally recur on a return to work. Bone-spavin results in an alteration of the structure of the bone, and this form is frequently incurable. In the case of a valuable horse, the services of a competent veterinary surgeon should be procured.

Cotton Seed as a Fertilizer.—"W. S.," Montgomery, Ala. The hulls of cotton seed contain in their ash, which is about 7 per cent of the dry hulls, 23.73 per cent of potash, and 7.88 per cent of phosphoric acid. The whole seed gives 4 per cent of ash, and the ash contains from 27 to 36 per cent of potash, and 36 per cent of phosphoric acid. Cotton seed, freed from the oil and husk, contains 7 per cent of nitrogen, 2 per cent of potash, and 3 per cent of phosphoric acid. The whole seed contains 3½ to 4 per cent of nitrogen. It is worth as a fertilizer from $25 to $40 a ton. Guano is worth about $60 a ton at the place of import. Cotton seed should be composted with earth, and when used as a fertilizer, should be kept as near the root of the plant as possible. It should therefore be well mixed with the surface soil for about three or four inches in depth. To harrow it into the ground would be the most effective method of using it.

Charcoal—Burned Bones.—"J. J. H." Charcoal is entirely useless as a fertilizer. Burned bones are nearly all phosphate of lime and valuable. Wood ashes benefit land always and everywhere.

Regarding Clover Seed.—"W. J. V.," Kent Co., Md. To decide if it is most profitable to save the clover for seed, or to turn it down as a fertilizer, the question of comparative value should be considered. If the soil is good, and a fair crop of seed can be expected, it will certainly pay better to harvest the seed, and buy fertilizers with part of the proceeds. If the soil is poor, the crop of seed might be worth much less than the value of the clover plowed under. Every case must be judged by its own circumstances. Generally, if there is any prospect of seed, it may be most profitable to save it, as clover seed always bears a very high and profitable price.

"Big-Head"—Disease of the Bone of the Head.—"J. H. N.," Clay Co., Neb. This disease, (*Osteoporosis*), is incurable. It is an ulceration and decay of the bone which result in its gradual destruction. The final result may be protracted by occasionally injecting a weak carbolic acid, four grains of crystallized acid in one ounce of water, into the opening.

Be Careful with Artificial Fertilizers.—It is necessary to exercise care in the use of artificial fertilizers, most of which are poisonous, if taken in any considerable quantity. Cases frequently occur, in which cows, sheep, or calves, pasturing upon a meadow which had been recently dressed with nitrate of soda, have been fatally poisoned; poultry have picked up scattered grains of muriate of potash; horses have licked bags of other chemical substances, and fertilizer bags, having been thrown into water to steep and cleanse, have poisoned the water, and caused the loss of valuable animals. As the use of these necessary fertilizers increases, it must be remembered, that most of them are poisonous to animals, and proper caution be therefore exercised.

Disease of the Blood.—"G. W. B.," Wayne Co., Tennessee. Eruptive diseases such as strangles, farcy, and grease, denote an impure condition of the blood. In all these cases the best treatment is, to give sulphite of soda, in half-ounce or one ounce doses, at discretion daily, or every two or three days, according to circumstances. This should be given in the food at night and continued for two or three weeks. In the mean time the food should be nutritious and easily digestible. Corn should be given in great moderation; oats, barley, and bran, being the principal grain.

Windmills for Grinding Corn.—"L. W. W.," Lewes, Del. Wind-power may be very profitably applied to milling purposes under certain circumstances, as in localities where the sweep of the wind is not obstructed by hills or woods, and where water or other power would be less convenient or more costly. It is difficult to say which is the best wind-engine, as each of the standard patterns has some peculiar excellencies. It would be best to procure catalogues from the manufacturers who are mentioned in the *American Agriculturist* monthly, and choose from these that which will suit best.

Cement Concrete for Buildings.—"A Reader." Sandstone will make a very good material for a cement concrete. It should be broken into pieces from the size of an egg up to that of a pint bowl; angular fragments are to be preferred to round pieces. As it is almost as strong as solid stone, when well rammed down and thoroughly set, no blocks at the corners are needed; nevertheless they may be used if some square blocks that will bind well can be procured; round stone would be worse than none. A wall two feet thick, is strong enough for a large building. The proportions to be used are: one part of cement, four parts of sharp, coarse sand, and as much stone as will bed solidly, with the spaces between filled with the mortar. This is usually about 7 to 11 times as much stone as cement. There is no disagreeable smell about it. See *American Agriculturist* for December, 1874, for full particulars as to building cement houses.

MAGIE OR POLAND CHINA.

D. M. MAGIE, Oxford, Butler Co., Ohio.

Originator and Breeder of the Famous Magie or Poland China Hogs.

Pigs for sale at all seasons of the year. Sows in pig to my best boars, for sale. Premium show stock of the finest quality, for sale at reasonable prices. Parties wanting the Magie or Poland China stock *pure* should send to headquarters, and address me as above.

Please state where you saw this advertisement.

ESSEX PIGS.

Pure, Well Bred, Very Choice.

Prices at two to three months old as follows:

One Boar - - - - - -	**$20.00**
Boar and Sow - - - - -	**37.50**
Boar and Two Sows - - -	**55.00**
Boar and Three Sows - -	**70.00**

Pairs and trios not akin, and selected with special reference to their breeding.

The pigs are put in light boxes, and furnished with food for the journey without extra charge.

I guarantee the safe delivery of the pigs.

I have a splendid lot of pigs now ready to ship, and can fill orders promptly.

Send your address on a postal card for further information. A few choice, young sows, served by my best boars, for sale at from $40 to $60 each.

Address **JOSEPH HARRIS,**
Moreton Farm. Rochester, N. Y.

NEW AND ENLARGED EDITION of our **BREEDERS' MANUAL**, containing 56 pages valuable reading, besides 16 full-page stock cuts from life. *Just out!* Price 25 cents. Choice thoroughbred Pigs, Sheep, Calves, Poultry, &c. *We guarantee satisfaction.* SEED WHEAT. New Crop TURNIP SEEDS, Flat Dutch, Red Top and Ruta-Baga, only *55 cents per pound, post-paid.* Six sample packages farm seed, free for two 3-cent stamps. PEACELY COMPANY. Circulars free.

BENSON & BURPEE'S Seed Warehouse, 223 Church St., Philada.

Hall Bros., Ann Arbor, Mich., make a specialty of breeding the finest strains of Essex, Suffolk, Berkshire, and Poland China pigs. *Prices ½ off card rates.* Satisfaction guaranteed. A few splendid pigs, gilts, and fine boars now ready.

Purebred Calves, Chester White, Berkshire and Yorkshire Pigs, Scotch, Skye, and Shepherd pups, Poultry and Pigeons, all of the finest imported strains, bred and for sale by Francis Morris, Morton, Del. Co., Pa. Send for circular.
FRANCIS MORRIS, P. O. Box 2292, Philadelphia.

Ohio Improved Chesters, received First Premiums in a majority of the States. Send for their description, and Choice Poultry, and get ready for the Fall Fairs. L. B. SILVEY, Cleveland, Ohio.

BERKSHIRE PIGS.

Most fashionable Pedigree. Rock bottom prices.
D. H. GOODELL, Antrim, N. H.

PREMIUM CHESTER WHITE, BERKSHIRE and **ESSEX PIGS,** bred and for sale by
GEO. B. HICKMAN, West Chester, Chester Co., Penn.
Also fancy poultry. Send stamp for circular and price list.

WILLIAM CROZIER,

BEACON HILL, Northport, L. I., N. Y.,

Received a Medal and Diploma on his stock at the Centennial Exhibition, Importer and Breeder of Clydesdale Horses, Ayrshire and Jersey Cattle, South-down Sheep, and Improved Berkshire Hogs—and English Dorking Fowls.

BEACON FARM, *Northport, Long Island,*
BREEDERS OF
Alderney and Ayrshire Cattle,
COTSWOLD SHEEP & BERKSHIRE SWINE.

Also FANCY POULTRY of choicest kinds, bred from the best stock. Address
J. N. ROBINS, Manager.

Black Bass for stocking ponds—**Pekin Ducks, Bronze & Narragansett Turkeys,** Light Brahmas. **Jersey Cattle,** A. J. C. C. R., and Cotswolds, at low prices. Address W. CLIFT, Mystic Bridge, Ct.

GAME FOWL. Red Irish Setters, and Carrier Pigeons, shipped by **J. C. COOPER, Cooper Hill, Limerick, Ireland,** winner of Gold Medals at Paris and New York; also Thorough-bred Hounds, Beagles, and other Dogs. J. C. C can likewise select **Sheep, Cattle,** and **Horses** for clients, having had long and large experience in them.

The Best and Cheapest.

BUCHAN'S
Cresylic
SHEEP DIP.

Patented May 28th, 1867, Re-issued July 30th, 1872.

A Saponaceous Compound with Cresylic and Carbolic Acid.

For Preventing and Curing the Scab and all parasitic diseases of the Skin. Will destroy Lice, Ticks, Fleas, &c.

Is beneficial to the general health and condition of the flock. The use of this **DIP** will cleanse and whiten the Fleece—also increased the growth or weight sufficient to be a full equivalent for the cost of the Compound.

This Preparation is Warranted to be **entirely harmless** and **free from all poisonous** Compounds, and will positively do all that we claim for it. Put up in packages of 1, 5, 10, 50, 100, and 200 pounds.

Buchan's Cresylic Ointment.

Certain Death to the Screw Worm or Grub.

It not only destroys the worms, but cleanses and quickly heals up the offensive sores made by it.

No fly will attack a wound to which this preparation has been applied. Sheep which rarely recover from the attack of the worm under the ordinary treatment, are quickly cured by this application. In solution, this ointment will be found invaluable for healing Saddle Galls, and all abrasions of the skin of animals.

For further particulars, send for price lists and circulars to
KIDDER & LAIRD,
83 John Street, New York.

SMITH'S
"Eagle Claw of '76."

A safe and ingenious device for catching fish, animals, game, &c. Sample, 50 cts., by mail, or send stamp for circular.

Address **EAGLE CLAW CO.,**
713 Sansom St., Phila., Pa.

AYRSHIRES FOR SALE.

Dunstan,	Dropped	March 17, 1876,	Price	$200.
Queechy,	"	June 8, 1877,	"	75.
Twin,	"	Dec. 17, 1876,	"	75.
Loma,	"	Feb. 12, 1877,	"	50.

The above are beautifully marked, perfect in pedigree, bred by the **Sturtevant Bros.,** and would be a valuable addition to any man's herd. Address
WILLIAM E. McQUILLIN.
"Sunnyside," **North Hadley, Mass.**

Cotswold Sheep.

Mapleshade Flock.

A fine lot of ram lambs, strong enough for service this fall. Also ewes and ewe lambs not akin.

Three good yearling rams and one splendid two-year old. Prices reasonable.

Address **JOSEPH HARRIS,**
Moreton Farm, Rochester, N. Y.

N. GUILBERT,

Evergreen Farm, Gwynedd, Pa.,

Importer and Breeder of Improved Blooded Live Stock, Horses, Cattle, Cotswold and Southdown Sheep, Chester, Berkshire and Yorkshire Pigs, Toulouse, Bremen, Hong Kong, White China and Wild Geese, Cayuga, Rouen, Aylesbury, Pekin and Musk Ducks, Bronze, Blue, Buff and White Turkeys, Dorkings, Brahma, Cochin, Guinea and all other Fowl, Deer, Swans, Peacocks, Pigeons, Eggs, &c., at low prices. Best Breeds of Dogs and Maltese Cats, Rabbits, Ferrets, Guinea Pigs, White Mice, &c. Song Birds of all kinds.

Fine Milch Cows always on hand.

Newfoundland Pups of Centennial First Premium Stock.

High Class Poultry.

Light and Dark Brahmas, Partridge and White Cochins, Brown and White Leghorns, Houdans, and G. S. Bantams. For sale at all seasons, at reasonable prices. Eggs, securely packed in new baskets, $3.00 per 13, or $5.00 for 26. Please state what you want. Send for Circular.
GEO. S. JOSSELYN, Fredonia, N. Y.

For Sale at Fleetwood Stock Farm, near Frankfort, Ky., Thoroughbreds, Trotters, Jersey Cattle, &c. Address J. W. HUNT REYNOLDS.

J. W. REYNOLDS, Cuckoo, Va., Breeder, Shipper, and Importer of **GAME AND OTHER FOWLS.** Eggs in season.

DAY'S
AUTOMATIC INCUBATOR.

Highest Centennial Award. Chickens hatched and reared summer and winter. Machine used as Incubator and Artificial Mother at same time. Capacity, 220 eggs. Price, $50. See July *Agriculturist*, 1876. Address
DAY BROS. & CO.,
92 Linden Avenue, Baltimore, Md.

AGENTS LOOK! Catalogue of **44** Novelties free, or with a Hand-book invaluable to letter writers, ten cents. T. J. HASTINGS & CO., Worcester, Mass.

To Heads of Families,

HAVING

CHILDREN to EDUCATE,

A TEMPORARY OR PERMANENT

FINE HOME,

Partly or wholly furnished or unfurnished

For Sale or To Let,

VERY LOW.

Will be SOLD at little more than half its real value, and little or no cash required; or LEASED two or more years, if desired, at a *low rental*, with any part or the whole of the principal furniture, carriages, etc., if desired. (The present owner and occupant desires to be absent with his family for a year or two, or more.)

Location in one of New England's most Beautiful Towns, having a College, Theological Seminary, and Excellent Schools, with Society unsurpassed.

A most admirable place in which to bring up and educate a family.

Easily accessible to N. Y. City several times a day.

This is a chance seldom offered. The Homestead is very attractive, is large and complete, with all desirable outbuildings, etc., etc., and is situated on high ground, with splendid surrounding views.

For further Particulars address "HOMESTEAD," care *Amer. Agriculturist*, 245 Broadway, New York.

THE PRACTICAL TREATISE ON
Lightning Protection,

recently issued by the undersigned, is the only complete and reliable work on the subject. It fully explains the serious defects of the lightning conductors now erected. Sent by mail, post-paid, on receipt of $1.50.
H. W. SPANG, Reading, Penna.

AMERICAN VETERINARY COLLEGE.

INCORPORATED 1875.

141 West 54th St., betw. 6th & 7th Avs., NEW YORK CITY.

The regular course of Lectures in this Institution will commence on Wednesday, 3d of October, 1877, and terminate late in Feb., 1878.—The Spring course will begin on March and last until middle May.

Apply for Particulars and Circulars to

A. LIAUTARD, M.D.V.S.,
Dean of the Faculty.

FARMER'S VETERINARY ADVISER,

By PROF. I. LAW, Cornell University, Ithaca, N. Y.

"The best work on the diseases of animals in the English language."—*Country Gentleman.*

Sent by mail from the Author for **$3.**

Crandall's HEAVY ARTILLERY.

No Powder.] FIRING THE "BIG GUN" AT HOME. [No Smoke.

GREATEST AMUSEMENT OF THE AGE.

RECREATION AT HOME.

FOR ALL AGES.

For BOYS and MEN. For the Family all together. | **For GIRLS and WOMEN.** For a Company of Young People.

CAN BE USED

In ANY ROOM, In ANY HOUSE,

Quickly Brought out Ready for Use. . . Quickly Put Away. . . . No Litter.

☞ CAPITAL HOME SUBSTITUTE ☜

For CROQUET, TEN PINS, BILLIARDS, BAGATELLE, a SHOOTING GALLERY, etc.

To be Played at HOME, with no evil associates or surroundings. It gratifies every Boy's taste for a Cannon, or Gun, or Pistol. . . . Is perfectly SAFE; will not injure the Players, or mar the furniture; it will last for years; can not easily get out of order. . . . . FATHERS will enjoy using it with their SONS. . . . It is wanted in every Home.

FOR ALL SEASONS.

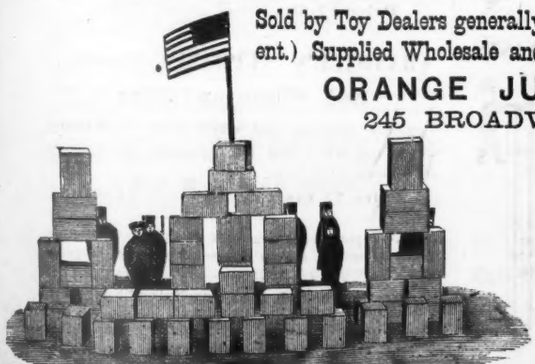
CRANDALL'S HEAVY ARTILLERY has a Large Cannon, complete, with many ingenious devices for making it wonderfully effective. It throws, with great precision, to the distance of 20 or 30 feet or more, a 1½ inch Rubber Ball, just hard enough to do execution, yet soft enough not to injure any person, or mar any furniture, unless fired point blank at thin glass or very fragile articles.

Sixty Blocks (Red, White, and Blue) are provided to build up Fortifications in a great variety of forms. A Company of Soldiers, with Officer and Flag, are placed in any desired position. Some of the positions are shown in the engravings on this page. The forms and methods of arrangement are, of course, unlimited, furnishing *greatly varied* and **LASTING AMUSEMENT.**

☞ By an ingenious arrangement, the whole apparatus packs into a neat box, only 18 inches long, 6 inches high, and 8 inches wide,—easily set aside when not in use.—Rules, Illustrations of a variety of Forts, etc., accompany each box containing the set.

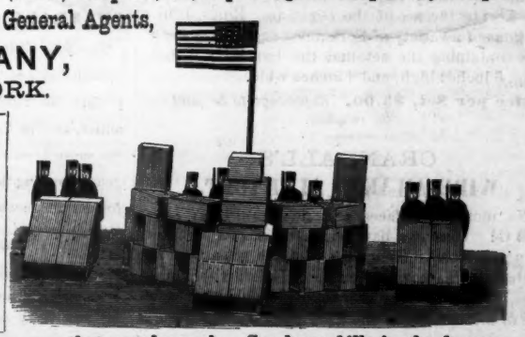
Sold by Toy Dealers generally and many others. (Price, complete, $3, expressage to be paid by recipient.) Supplied Wholesale and Retail by the Sole General Agents,

ORANGE JUDD COMPANY,
245 BROADWAY, NEW YORK.



☞ *Twelve families can combine, and have a CASE, containing twelve complete sets in boxes, come cheaply as freight.*

PATENTED FEB. 6, 1877.



These are two small specimens of a GREAT NUMBER of large and small fortifications, etc., that may be made. See large bills in the boxes.

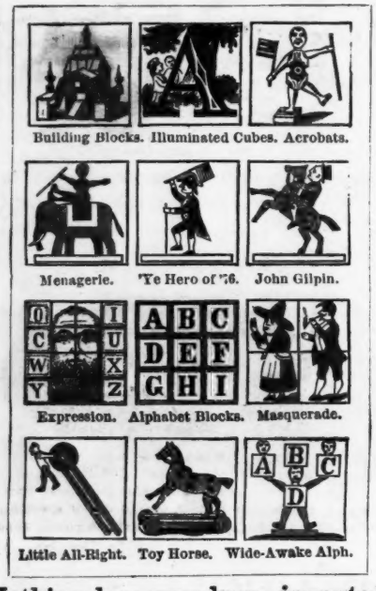
Happy Hours AT HOME.

FUN FOR

Little Folks

AND

Great Folks.


Building Blocks. Illuminated Cubes. Acrobats.
Menagerie. 'Ye Hero of '76. John Gilpin.
Expression. Alphabet Blocks. Masquerade.
Little All-Right. Toy Horse. Wide-Awake Alph.

Nothing has ever been invented that more fully combined amusement and instruction, and proved more truly an almost endless means of making the little ones (and the great ones) happy, than

Crandall's Blocks

For Children.

Read about them below.

CRANDALL'S HEAVY ARTILLERY.

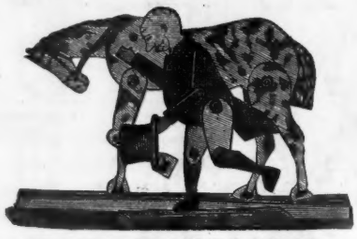
The greatest amusement of the age! Recreation at home for all ages and for all seasons! Crandall's Heavy Artillery is made up of a large Cannon, complete, which throws a 1¼-inch Rubber Ball to the distance of 25 feet or more, and Sixty Blocks (Red, White and Blue), to build up Fortifications, also a Company of Soldiers, with Officer and Flag, to Garrison the Fort. The Game is to beat down the Fort by the use of the Big Gun. Rules, Illustrations of a variety of Forts, etc., accompany each box containing the set, and the box is 18 inches long, 6 inches high, and 8 inches wide.

Price per Set, $3.00. *Expressage to be paid by the recipient.*

CRANDALL'S WIDE-AWAKE ALPHABET.

No more long faces and no more tears over A B C! Here we have amusement and instruction combined. Each box contains twenty-seven little men, each representing a letter, with arms, legs, and jolly faces. This set of Blocks is susceptible of more changes, and a greater variety of forms and combinations than any Spelling Block ever offered to the public. The Pieces are durable, the Letters plain, the Faces mirthful, and the Amusement afforded by them unlimited. They please while they instruct, and are a source of enjoyment to young and old.

Price per Box $1.00; *by mail, prepaid,* **$1.50.**



CRANDALL'S JOHN GILPIN.

This beautiful and interesting toy is regarded by Mr. Crandall as one of the best of his inventions for the little folks. It is made up of two figures, John Gilpin—whose highly colored dress is specially attractive to Boys and Girls—and his Horse, which intelligent animal performs a very important part in the illustration of Gilpin's famous ride.

Price per Box $1.00; *by mail, prepaid,* **$1.35.**

CRANDALL'S TOY HORSE.

Here is something that will make glad every little boy that gets it. The Toy Horse is about 6 inches in hight to the tops of his ears. He stands upon a four-wheeled base, all ready to be set in motion by his owner. He is made up in pieces and can be taken apart and laid snugly away in his box.

Price 25 Cts.; *by mail, prepaid,* **35 Cts.**

CRANDALL'S ACROBATS.

Full of fun and frolic, and most brilliant in costume. These are among the most fascinating and ingenious toys ever invented. The number of figures which can be made with the pieces in a single box is limited only by the ingenuity of the operator.

Price $1.00; *by mail, prepaid,* **$1.25.**

CRANDALL'S MENAGERIE.

One of the most wonderful and amusing things ever brought out for the entertainment of children. The six animals composing the menagerie are beautifully painted, and so arranged into 56 pieces in each box, that tens of thousands of most laughter-provoking figures can be made up with them.

Price $2.00. *Expressage to be paid by the recipient.*

CRANDALL'S LITTLE ALL-RIGHT.

One of the funniest and jolliest of the low-priced toys. The lively Little All-right throws himself into a great variety of positions as he whirls around the "wheel." This toy can not conveniently be sent by mail. It is one of the latest things manufactured by C. M. Crandall. Ask the nearest Toy dealer for Crandall's Little All-right, hasten to buy it, and be happy.

CRANDALL'S IMPROVED GYMNASTS.

Two jolly little fellows, attached to opposite ends of two bars, are made to perform the most laughter-provoking antics, and to throw themselves into the most unaccountable positions, by gently working the foot of the wooden frame through which the bars revolve. It is a low-priced toy, made on the principle of the "Little All-right," and like that, one of Crandall's latest. It is not conveniently sent by mail, but is for sale by most Toy-Dealers.

CRANDALL'S MASQUERADE-BLOCKS.

Making 300 different and beautiful Combinations of Pictures, which are in very brilliant colors. They are not injured by washing, do not wear out, and afford endless amusement.

Price $1.00; *by mail, prepaid,* **$1.20.**

CRANDALL'S EXPRESSION-BLOCKS.

With Letters on one side, Picture on the other. The Alphabet is the key to the picture which, when complete, represents the inventor in Dream Land. These Blocks are water-proof, and can be washed if soiled.

Price 50 Cts.; *by mail, prepaid,* **70 Cts.**

"Ye HERO OF '76."

The great "Centennial Toy." A fine old soldier in a brilliantly colored uniform, with cocked hat, staff, and flag, all put up in a neat box. The Hero is so constructed that he can be placed in almost numberless and amusing positions, and will delight the children everywhere.

Price 35 Cts.; *by mail, prepaid,* **45 Cts.**

CRANDALL'S BUILDING-BLOCKS.

Can be made into forms of almost endless variety. The blocks are put up in neat, strong boxes, and a large sheet giving various designs of buildings, etc., accompanies each box.

Price—No. 1, $2.00; *by mail, prepaid.* **$2.50.**
No. 3, $1.00; *by mail, prepaid.* **$1.25.**
No. 4, $1.00; *by mail, prepaid,* **$1.15.**

CRANDALL'S ILLUMINATED PICTORIAL ALPHABET CUBES.

These Cubes are gorgeously colored, and will make over 500 beautiful combinations or figures. They are water-proof, odorless, and durable; put up in handsome black walnut boxes; and are most attractive to both young and old—an elegant present for the little ones.

Price $2.50; *by mail, prepaid,* **$3.00.**

CRANDALL'S ALPHABET-BLOCKS.

Red, White, and Blue.

Tasteless, odorless, and water-proof. The letters are on red, white, and blue ground. All children are pleased with them.

Price 75 Cts.; *by mail, prepaid,* **$1.00.**

N.B.—*If postage is not remitted with the prices, as above, the blocks will be sent by express at purchaser's expense.*

Orders from the trade will be supplied on liberal terms.

ORANGE JUDD COMPANY.
245 BROADWAY, NEW YORK.

SHOOTING BOOKS.

FRANK FORESTER'S AMERICAN GAME IN ITS SEASONS.

Illustrated with twenty beautiful full-page Engravings from Nature of American Game.

CONTENTS:—JANUARY. Caribou or American Reindeer. —FEBRUARY. Moose Deer. Wild Goose.—MARCH. Mallard and Widgeon.—APRIL. American Snipe. Striped Bass. — MAY. American Trout. Brent Goose. — JUNE. Bay Snipe. Godwit. Salmon. — JULY. Woodcocks.—AUGUST. Summer Duck. Common Deer.—SEPTEMBER. Teal.—OCTOBER. Quail. Bittern. — NOVEMBER. Ruffed Grouse. Yellow Perch.—DECEMBER. Canvas Back. Winter Duck. Fully Illustrated and Described. New edition. Post-paid, $3.00.

FRANK FORESTER'S FIELD SPORTS.

Embracing the Game of North America, Upland Shooting, Bay Shooting, Wild Sporting of the Wilderness, Forest, Prairie, and Mountain Sports, Bear Hunting, Turkey Shooting, etc. 18th edition, revised and illustrated. Two post octavo volumes. Post-paid, $6.00.

FRANK FORESTER'S FISH AND FISHING.

100 engravings. Embracing a full illustrated description of the Game Fish of North America; Trout and Salmon Fishing; Shoal Water and Deep Sea Fishing; Lake and River Fishing; Trolling, Fly Fishing, etc. 12th edition. One post-octavo volume. Post-paid, $3.50.

FRANK FORESTER'S COMPLETE MANUAL.

For Young Sportsmen, of Fowling, Fishing, and Field Sports. With directions for handling the Gun, the Rifle, and the Rod. Art of Shooting on the Wing. The Breaking, Management, and Hunting of the Dog. The varieties and habits of Game. River, Lake, and Sea Fishing. Post octavo. Post-paid, $3.00.

THE HUNTER AND TRAPPER.

By Halsey Thrasher, an old hunter, with fine illustrations. It contains hints about trapping all sorts of game, from a honey-bee to a bear, with a chapter on fishing, and another on dressing and tanning skins and furs. Post-paid, $1.00.

FIELD, COVER, AND TRAP SHOOTING.

By Capt. A. H. Bogardus. With Steel Portrait and Engraving of the "Champion Medal." 1 vol., 12mo. Fancy Stamped Cloth. Price, Post-paid, $2.00.

A compendium of many years of experience, giving hints for skilled marksmen and instructions for young sportsmen, describing the haunts and habits of game birds, flight and resorts of water-fowl, breeding and breaking of dogs, and everything of interest to the sportsman. The author is "champion wing-shot of America," who knows a gun as Hiram Woodruff knew a horse. And he has the same careful and competent editor who put Woodruff's "Trotting Horse of America" into shape—Chas. J. Foster, so many years sporting editor of Wilkes' *Spirit of the Times.*

SCHLEY'S AMERICAN PARTRIDGE AND PHEASANT SHOOTING.

By Frank Schley. Describing the haunts, habits, and methods of hunting and shooting the American Partridge, Quail, Ruffed Grouse, Pheasant. With directions for handling the gun, hunting the dog, and the art of shooting on the wing. Containing a history of the partridges and grouse inhabiting North America. Illustrated. Post-paid, $2.00.

THE DOG.

By Dinks, Mayhew & Hutchinson. Compiled and edited by Frank Forester. Containing full instructions in all that relates to the Breeding, Rearing, Breaking, Kenneling, and Conditioning of Dogs, with valuable recipes for the treatment of all diseases. Illustrated. Post octavo. Post-paid, $3.00.

THE BREECH LOADER.

By GLOAM. Description, Selection, Manufacture, Separation, Loading, Cleaning, Shooting, etc. Post-paid, $2.00.

THE DEAD SHOT:

Or, Sportsman's Complete Guide; a Treatise on the use of the Gun, with Rudimentary and Finishing Lessons in the Art of Shooting Game of all kinds. By Marksman. Post-paid, $1.75.

THE CRACK SHOT:

Or, Young Rifleman's Complete Guide; being a Treatise on the use of the Rifle, with Lessons, including a full description of the latest improved breech-loading weapons; rules and regulations for Target Practice, and directions for Hunting Game. By Edward C. Barber. Post-paid, $1.75.

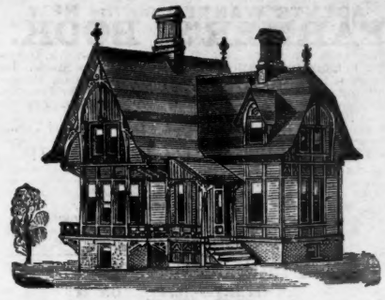
GUN, ROD, AND SADDLE.

Nearly fifty practical articles on subjects connected with Fishing, Shooting, Racing, Trotting, etc. Post-paid, $1.

PRACTICAL TROUT CULTURE.

By J. H. Slack, M. D., Commissioner of Fisheries, New Jersey. Fully illustrated and describing thoroughly all that is requisite to successful Trout Culture. Post-paid, $1.50.

ORANGE JUDD COMPANY,
245 BROADWAY, NEW YORK.



PRACTICAL BOOKS

Suited to the wants of Architects, Carpenters, Builders, and all who contemplate building or remodeling Frame or Brick Buildings of any Size or Cost.

Woollett's Villas and Cottages;

Or, Homes for All. A Book for the People. Showing Plans, Elevations and Views of twelve Villas and ten Cottages, being a Collection of Dwellings suited to various individual wants and adapted to different localities.

This is a most picturesque and pleasing work and is well adapted to the public wants. One Vol., oblong 8vo., of forty 8x12 plates. Cloth; Price, Post-paid, $3.00.

Atwood's Modern American Homesteads

Containing 46 plates, showing a variety of designs for Homesteads, Stables, Ice and Milk Houses, Details, etc., all to scale; also Specifications and Description. 8vo. Cloth. $3.50.

Detail Cottage and Constructive Architecture.

Containing Seventy-five large Lithographic Plates, under the Direction of A. J. Bicknell, showing a great variety of Designs for Cornices, Brackets, Windows and Window Caps, Doors, Piazzas, Porches, Bay and Dormer Windows, Observatories, Towers, Chimney Tops, Balconies, Canopies, Scrolls, Gable and Sawed Ornaments, Fences, Stairs, Newels, Architraves, Mantels, Plaster Finish, etc., including Forty-five Perspectives, Elevations, and Plans of Modern Designs for Cottages, with Details, and Eighteen Elevations of Summer Houses, Villas, Sea-Side Cottages, and Country Houses, together with Fourteen Designs of Street and Store Fronts, with inside finish for Stores and Banks; also, Framings for Dwellings, Barns, Exhibition Buildings, Roofs, Bridges, etc., etc., making in all a Practical Book for Architects, Carpenters, and all who contemplate Building or Remodeling Wood, Stone, or Brick Buildings. One large Quarto Volume, sent FREE by mail or express on receipt of price, $10.00.

BICKNELL'S

Village Builder, with Supplement.

Shows Elevations and Plans for Cottages, Villas, Suburban Residences, Farm Houses, Stables and Carriage Houses, Store Fronts, School Houses, Churches, Court Houses, and a Modern Jail. Also Exterior and Interior Details for Public and Private Buildings, with approved form of Contract and Specifications, containing Seventy-seven Plates, drawn to Scale, giving the Style and Cost of Building in different parts of the country, being an original work, comprising the Designs of 30 Architects, representing the New England, Middle, Western, and South-Western States. One large Quarto Volume. Price, with Supplement, Post-paid, $12.00.

SUPPLEMENT TO

Bicknell's Village Builder.

Contains Twenty Plates, showing Eighteen Modern and Practical Designs for Country and Suburban Residences of Moderate Cost, with Elevations, Plans, Sections, and a Variety of Details, all drawn to Scale; also, a full set of Specifications, with approved form of Contract, and Estimates of cost. One superb quarto volume. Price, post-paid, $5.00.

Carpenters and Builders' Assistant, And Wood-Workers' Guide.

By L. D. GOULD, Architect and Practical Builder.

Containing Twenty-three Plates, fully described. Also, Tables of the Strength of Materials, Length of Braces, where the Run is given, and Length of Run where the Brace is given, Technical Terms used by Carpenters, etc., etc. 8vo. volume, bound in cloth. Price, post-paid, $3.

The American Stair-Builders' Guide.

By L. D. GOULD

Illustrated by 32 Original Plates fully described and drawn to scale. One 8vo. volume, price, post-paid, $4.00.

Guillaume's Interior Architecture.

Containing Twelve Folio Plates, showing Twelve Designs and Eight Sections for Doors, Stairs, Window Finish, Mantels, Wainscoting, &c., and Two Elevations for Dwellings in French and Italian Style. One folio volume, flexible cloth, post-paid, $3.00.

A REVISED AND ENLARGED EDITION OF

Hallett's Specifications,

To which has been added the Form of Contract in general use in the City of New York, which has also been revised, and now first published in its present form. Blank specifications for Frame Houses, costing from Two Thousand to Twenty Thousand Dollars, carefully written by William T. Hallett, Architect. They consist in their various sections of Carpenter and Joiner, Tinner, Plumber, Slater, Painter, and Mason. Printed on large size letter-paper, and neatly bound in paper cover. Price, $1.75 per set.

Hallett's Builder's Contracts, 10 Cts.

Loth's Practical Stair-Builder, $10.00.

ORANGE JUDD COMPANY,
245 BROADWAY, NEW YORK.

Gardening for Profit.

A Guide to the Successful Cultivation of the Market and Family Garden.

BY PETER HENDERSON.

Finely Illustrated. Price, Post-paid, $1.50.

NOTICES BY THE PRESS.

Here is a book that will interest not only those who follow gardening for profit, but also the boys and the matrons upon the farm, who too often have the whole care and management of the family garden. Every minutia of garden management is plainly given and illustrated. There are a hundred things told and described in this book that any wide-awake cultivator would give five times the cost to know. It interests the enterprising boy, because from it he can learn how much a small patch of ground can be made to yield. It interests the farmer, because he can learn from it how well good cultivation and the proper management of soils will *pay*, and how an unkindly soil can be ameliorated. He can learn much of what every farmer needs to know of the treatment of soils.—*Farmers' Advertiser* (St. Louis).

This volume, which is alike creditable to Mr. Henderson's head and heart, and which powerfully illustrates the *push* inherent in the Scottish character, ought to be in the hands of every gentleman who would turn his gardening propensities to good account.

[*Scottish American Journal* (New York).

We are sure we shall do our readers a favor if we can induce them to purchase and consult this book. We know of nothing on the subject equal to it.

[*The Telegraph* (Painesville, O.).

It is the summing up of the experience of one of the most extensive and most successful gardeners of New Jersey, and whose opinion is accepted as authority.

[*The North-western* (Belvidere, Ills.)

He (Mr. Henderson) began life as a poor boy, and by industry and aptitude has made a large fortune; and, unlike his prototype, Grant Thorburn, he knows how to keep it. But he has neither shoddied nor speculated, nor traded; and not a dollar of his riches comes from a less honorable source than the culture of the soil. And now, with an unselfishness that does him honor, he gives us this book; and the book is nothing less than the key to wealth—the same key he has used for twenty years—polished by wear, and working easily by long usage.

[*Daily Dispatch* (Richmond, Va.)

In every department it is full and complete, furnishing an invaluable manual for the market gardener, while for the cultivator of a family garden its hints and instructions are none the less practical and interesting. It has chapters upon location, situation and laying out of lands for gardening; soils, drainage and preparation; manures and implements; formation, management, and uses of hot-beds and cold frames; how, when, and where to sow seeds; vegetables, their varieties and cultivation; and upon several other kindred subjects. The most valuable kinds of vegetables are described, and the culture proper to each is given in detail.—*New Hampshire Sentinel.*

We are creatures of habit, and many persons live without the pleasures and comforts of a garden because they have never known what these pleasures and comforts are. To all such we say, buy a little land and buy Peter Henderson's "Gardening for Profit," and learn to live under your own vine and apple-tree. We can't tell you in a newspaper article how to raise lettuce and asparagus, but Peter, in his little book, published by the Orange Judd Co., New York, tells the whole story in the most lucid manner.—*Gleaner and Advocate* (Lee, Mass.)

Peter Henderson's "Gardening for Profit," at $1.50, will tell more than even most gardeners know as to how to select and to best raise the vegetables and fruits which make the most profit.—*Picayune* (New Orleans).

It is unquestionably the most thorough and the best work of its kind we have yet had form the pen of an American author. It is written in a clear, concise style, and thus made more comprehensive than works which smack more of the office than the farm or garden.

[*Daily Evening Times* (Bangor, Me.)

There are marvels of transformation and rapid reproduction recorded therein, which might well shame the dull fancy of the author of Aladdin or of Kaloolah. There is no theory about it; a man who has made himself rich by market-gardening plainly tells our young men how they can get rich as easily as he did, and without wandering to California or Montana for it either.

[HORACE GREELEY in the *N. Y. Tribune.*

ORANGE JUDD COMPANY,
245 BROADWAY, NEW YORK.

TEAS and COFFEES
AT WHOLESALE PRICES

In Lots to Suit Customers.

SPECIAL TERMS TO CLUB ORGANIZERS and those who devote whole or part of time in selling our goods.

SEND FOR NEW PRICE-LIST.

THE GREAT AMERICAN TEA COMPANY,

(P. O. Box 5643.) 31 and 33 Vesey St., New York.

THE UNITED STATES LIFE INSURANCE COMPANY,

IN THE CITY OF NEW YORK,

261, 262, 263 Broadway.

ORGANIZED 1850

ASSETS, $4,827,176.52

SURPLUS, $820,000

EVERY APPROVED FORM OF POLICY ISSUED ON MOST FAVORABLE TERMS

ALL ENDOWMENT POLICIES AND APPROVED CLAIMS MATURING IN 1877 WILL BE DISCOUNTED AT 7%

ON PRESENTATION.

JAMES BUELL, - - PRESIDENT.

C. M. MARVIN, General Agent, 261 Broadway, N. Y.

The New Climax Wringer.

Complete Revolution! Perfect Success!! Nothing Like it!!!

Be satisfied as to the merits of the "New Climax" before buying an *old fashioned* cog-wheel wringer.

Take it on Trial with any other, and buy the Best.

THE PURCHASE GEAR

causes the wringer to *turn with half the labor* of other wringers. **N. B. PHELPS,** Manufacturer, **102 Chambers St., New York.**

---

250 MARYLAND FARMS, in Tracts from 30 to 300 acres. Near railroad and navigable Salt-water (with all its luxuries), in Talbot Co., Md. Climate mild and healthy. Titles good. New Pamphlet and Map showing *location*, free. Address C. E. SHANAHAN, Atty., Easton, Md.

VIRGINIA IMPROVED FARMS for SALE. At low prices. Send for Catalogue, Maps, &c. Inclose stamp. M. BATES, *Name this paper.* 1103 Main St., Richmond, Va.

VIRGINIA LANDS. Send stamp for descriptive list of Virginia farms for sale. DICKINSON & CHEWNING, Richmond, Va.

EDWARD FLY, Real Estate & Loan Agent, Putnam, Conn. Farm and Village property, Mills and Mill Privileges constantly on hand for sale or exchange. Correspondence solicited.

E. & O. WARD, PRODUCE COMMISSION MERCHANTS. Sole Agents for Alex. Hornby's Steam-cooked White Wheat and Oat Meal. No. 379 Washington-st., N. Y. (Est'd 1845.) Ref., *Irving National Bank*, New York City.

RUFUS L. COLE, PRODUCE COMMISSION MERCHANT, 141 Reade St., New York. *Established in* 1852. Market reports and shipping directions sent *free* on application.

COMMISSION HOUSE of F. HOPP & CO., 317 Washington St., N. Y. Good sales and prompt returns. Send for Weekly Price Current and Shipping Plate.

AGENTS WANTED for the NEW FARMER'S BOOK.

Gives full information on all kinds of Farm-work, Drainage, Fertilizers, Rotation of Crops, and Farm-Stock. Includes a most valuable and practical treatise on House-building, and book of Legal forms and Laws for farmers. *The most valuable Farmer's Book ever published.* For full description and terms, address J. C. McCURDY & CO., Philadelphia, Pa.

FORT EDWARD COLLEGIATE INSTITUTE.

For adult students, to prepare for college, for business, for professional studies, or for life. Graduates' courses, for ladies and gentlemen, with Diplomas. Superb brick buildings. Fifteen Teachers. $172 per academic year for board, furnished rooms, fuel, washing, and common English. 24th year begins Sept. 6. For catalogues or rooms address JOS. E. KING, D.D., Fort Edward, N. Y.

Collegiate Institute, Hackettstown, N.J.

Rev. GEO. H. WHITNEY, D.D., Pres. Grants Degrees to ladies. Prepares gentlemen for college or business. Best building of its class. Thoroughness our motto. Nearly seven hundred students the past three years. Catalogues sent free.

---

65 LARGE MIXED CARDS, with name 10c. and 3 ct. stamp. 25 Styles **FUN CARDS,** 10c. Samples 6c. M. DOWD & CO., Bristol, Conn.

50 Mixed Cards, Damask, Repp, Granite, Etc., with name printed on all for 10c. and stamp. Outfit, 25c. Address CLINTON BROS., Clintonville, Conn.

50 MIXED CARDS, with name, 10c. and stamp. Agents' Outfit, 10c. COE & CO., Bristol, Ct.

YOUR NAME printed on **50 MIXED CARDS.** Damask, Repp, Granite, Bristol, &c., for 10c. and stamp. NOVELTY CARD CO., Box 335, Wallingford, Conn.

50 BRISTOL CARDS, (9 tints), with name, and sample of **Oriental Polish** for 10 cents and stamp. F. W. AUSTIN & CO., NORTH HAVEN, CONN.

50 MIXED CARDS, with name, for 10c. & stamp. Outfit 10c. D. S. STEVENS, Jr., Northford, Ct.

40 Finely Printed Visiting Cards, **18 Styles,** with your name on them all for only 10 cts. STAR PRINTING CO., Northford, Conn.

HOW TO LIVE IN FLORIDA,

HOW TO GO, COST OF TRIP, COST TO SETTLE, what to cultivate, how to cultivate it, etc., etc., all told in each number of **Florida New-Yorker,** published at 21 Park Row, New York City. Single copy, 10c., one year $1. **40** Acres Orange Land for $50. On line of railroad, country healthy, thickly settled Address J. B. OLIVER, Gen'l Agent, Box 5520, New York.

Herald of Health for 1877

and 4 back Nos. free $1.00. Samples 10 cents.

Eating for Strength, or how to feed ones self so as to maintain health, $1.00. Liver complaint, Headache and Nervous Dyspepsia, their Cause, Prevention, and Cure, by Hygiene, $1.00. All the above, $2.50 Circulars free. See Dec. *Agriculturist.* **WOOD & HOLBROOK, 13 & 15 Laight St., New York.**

Geo. Gillott

STEEL PENS,

SOLD BY ALL DEALERS.

No. 91 JOHN ST., NEW YORK.

HENRY HOE, Sole Agent. JOSEPH GILLOTT & SONS.

AMERICAN CATTLE.

Their History, Breeding, and Management.

By LEWIS F. ALLEN.

ILLUSTRATED. PRICE, POST-PAID, $2.50.

This book will be considered indispensable by every breeder of live-stock. The large experience of the author in improving the character of American herds adds to the weight of his observations, and has enabled him to produce a work which will at once make good its claims as a standard authority on the subject. An excellent feature of the volume is its orderly, methodical arrangement, condensing a great variety of information into a comparatively small compass, and enabling the reader to find the point on which he is seeking light, without wasting his time in turning over the leaves.

DWYER'S HORSE BOOK.

SEATS AND SADDLES, BITS AND BITTING,

AND

THE PREVENTION AND CURE OF RESTIVENESS IN HORSES.

By FRANCIS DWYER, Major of Hussars in the Imperial Austrian Service.

ILLUSTRATED.

PRICE, POST-PAID, $2.00.

Either of the above books sent post-paid on receipt of price by

ORANGE JUDD CO., 245 Broadway, New York.

WARING'S

Books for Farmers.

DRAINING FOR PROFIT AND DRAINING FOR HEALTH.

By GEO. E. WARING, Jr., Engineer of the Drainage of Central Park, New York.

CONTENTS.

LAND TO BE DRAINED; HOW DRAINS ACT; HOW TO MAKE DRAINS; HOW TO TAKE CARE OF DRAINS; WHAT DRAINING COSTS; WILL IT PAY? HOW TO MAKE TILES; RECLAIMING SALT MARSHES; HOUSE AND TOWN DRAINAGE.

EXTRACTS FROM NOTICES BY THE PRESS.

He (the author) describes the action of draining upon the soil, the construction of single drains and systems of drains, the cost and the profit of thorough drainage, the making of tiles, and the reclaiming of salt marshes, treats sensibly of malarial diseases, and closes with a chapter which should be widely read, on house drainage and town sewerage in their relations to the public health. [*Portland (Me.) Press.*

Nowhere does this book merit a wider circulation than in the West. Every year adds to the thousands of dollars lost to this State from want of proper surface drainage, to say nothing of the added gain to result from a complete system of under-drainage. This book will prove an aid to any farmer who may consult it. [*Chicago (Ill.) Republican.*

A Book that ought to be in the hands of every Farmer.

SENT POST-PAID, - - - - PRICE, $1.50.

The Sanitary Drainage of Houses and Towns.

By GEORGE E. WARING, Jr.

A clear and admirable exposition of the evils which result from defective drainage, showing how they can be remedied. Col. Waring is an experienced engineer, and discusses in an able and forcible manner the best methods of house, town, and city drainage. Price, post-paid, $2.00.

Earth-Closets and Earth-Sewage.

By GEO. E. WARING, Jr., (of Ogden Farm).

INCLUDING: The Earth System (Details).—The Manure Question.—Sewage and Cess-pool Diseases.—The Dry-Earth System for Cities and Towns.—The Details of Earth Sewage.—The Philosophy of the Earth System.

WITH SEVENTEEN ILLUSTRATIONS.

Paper Covers, Price, Post-paid, 50 cts.

ELEMENTS OF AGRICULTURE.

A BOOK FOR YOUNG FARMERS,

By GEO. E. WARING, Jr., Formerly Agricultural Engineer of the Central Park, in New York.

CAREFULLY REVISED.

CONTENTS.

THE PLANT; THE SOIL; MANURES; MECHANICAL CULTIVATION; ANALYSIS.

The foregoing subjects are all discussed in plain and simple language, that any farmer's boy may understand. The book is written by a successful *practical farmer*, and is full of information, good advice, and sound doctrine.

HORACE GREELEY says of it: "Though dealing with facts unfamiliar to many, there is no obscure sentence, and scarcely a hard word in the book; its 254 fair, open pages may be read in the course of two evenings and thoroughly studied in the leisure hours of a week; and we pity the man or boy, however old or young, who can find it dull reading. Hardly any one is so wise that he will not learn something of value from its perusal; no one is so ignorant or undeveloped that he cannot generally understand it; and no farmer or farmer's son can study it thoughtfully without being a better and more successful cultivator than before."

SENT POST-PAID, - - - - PRICE, $1.00.

Either of the above books sent post-paid on receipt of price by

ORANGE JUDD COMPANY, 245 BROADWAY, NEW YORK.